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Teachers' strategies for English-medium instruction in International Baccalaureate schools: An analysis of the diploma programme in Japan

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The implementation of the International Baccalaureate (IB) is expanding globally. In Japan, the number of schools offering the IB has increased from 27 in 2014 to 122 in 2025, including public and private schools. The Dual Language Diploma Programme (DLDP) of the International Baccalaureate Organization, promoted by the Ministry of Education, Culture, Sports, Science and Technology in Japan, requires at least two of the six courses to be taught in English, with the remaining courses taught in Japanese. This study explores the English-medium instruction (EMI) in DLDP high schools in Japan. Seventeen teachers from three public schools offering the programme within the Japanese educational framework were interviewed to qualitatively examine the state of English instruction in Japan, and the data were analysed using Williams and Moser's three-step coding. Teachers reported using English and Japanese flexibly to meet their students' needs and adjusting instructional emphasis based on subject-specific characteristics. Notably, mathematics and science instruction prioritised computational processes, thereby expediting calculations when conducted in Japanese. A gradual transition from Japanese to English, beginning with basic content in Japanese, was shown to be effective for student learning. Teachers' narratives revealed that assessment demands and the socio-cultural relevance of each subject influence subject learning in English. This study is among the first to explore long-term EMI practice through subject-specific teacher perspectives in Japan. The findings offer valuable information and novel insights for schools implementing second-language instruction, particularly in non-English-speaking contexts.

Keywords: second language; English-medium instruction; teacher strategy; International Baccalaureate; diploma programme; secondary education

INTRODUCTION

The International Baccalaureate (IB) was established in Switzerland in 1968 with the aim of creating a standardised curriculum and expanding university access worldwide (International Baccalaureate Organization [IBO], 2017). In Japan, the IB is currently being implemented in schools that serve students who have never been abroad.

Japan first recognised the IB in 1979. Initially, most authorised schools were international, but in the 2000s, some private schools also began seeking authorisation. In the 2010s, the focus shifted towards expanding the IB to cultivate global human capital. Supported by the Business Federation of Japan (Keidanren), the Japanese Cabinet officially adopted IB promotion as national policy in 2013. In response, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) established various initiatives, including the development of the Dual Language Diploma Programme (DLDP) in Japanese with the IBO (Umetsu, 2025). The introduction of the DLDP helped to gradually expand the number of public DLDP-approved schools in Japan. Currently, there are 21 such schools (Fujita, 2024). The DLDP requires that at least two of the six IB subject groups (language and literature, language acquisition, individuals and societies, sciences, mathematics, and the arts) be taught in English. Subjects in mathematics and the arts, and language acquisition are typically offered in English (Kimura et al., 2024). This requirement has introduced English-medium instruction (EMI) into public high schools where Japanese is the primary language of instruction. Japanese high school teachers traditionally view themselves as subject specialists (Uno, 1961), and many may consider teaching English as the responsibility of the English department. The introduction of the DLDP could, therefore, be a major barrier for high school teachers who have always taught their subjects in Japanese. How, then, do Japanese public school teachers perceive teaching subjects in English, and how do they overcome the traditional expectation about teaching?

This study examines the implementation of EMI within the IB programme in Japanese secondary schools, focusing on its long-term application. In this study, "long-term EMI" refers to EMI implemented continuously across multiple academic years and subjects rather than short-term or unit-based interventions. Previous research on how English, as the language of instruction in Japan, has focused on higher education, with limited exploration of long-term practices at the elementary and secondary levels (Kimura et al., 2024). The DLDP, as a two-year curriculum, is a good example of a long-term EMI initiative.

This study addresses the following research question:

> *What strategies do EMI subject teachers apply in second-language and content teaching?*

This study is novel in that it presents teachers' insights from long-term EMI practice in secondary education.

LITERATURE REVIEW

EMI in higher and secondary education

While much EMI research has focused on higher education, recent scholarship in comparative education has begun to address related issues in more diverse school and teacher contexts. For instance, Rodríguez et al. (2023) examined how teacher-preparation programmes in multilingual and multicultural settings form "pedagogical multicultural communities where language ideologies influence instructional strategy. Several journals have also published work on educational recovery after the COVID-19 pandemic (Chan, 2023), highlighting how teachers negotiate multilingual class realities and institutional policy. In parallel, Zhou et al. (2021) conducted a mixed-methods study of an EMI course at an international school in China and reported that students and teachers employed strategic translanguaging practices to scaffold understanding and maintain classroom engagement. Together, these studies suggest that EMI practice in school or cross-cultural contexts is deeply intertwined with teacher identity, policy and language diversity. These studies also indicate that understanding long-term, subject-specific EMI (such as in IB/DLDP settings) requires attention to broader comparative and professional dimensions. Selzer and Gibson (2009) found that local Japanese students enrolled in EMI courses often struggled, ultimately dropping out of such courses and even university altogether. Further challenges include teachers' limited ability to use intelligible English (Tange, 2010), reduced quantity and depth of academic content (Chapple, 2015), and increased workload and difficulties providing feedback in a second language (Hawkes & Adamson, 2023). Borg (2015) presented quantitative and qualitative evidence of the gap between the required and actual English-language skills of EMI teachers, noting that implementing EMI is difficult even for very skilled instructors. One of the most frequently reported issues regarding EMI implementation is the role of other languages used in instruction. Studies show that the language used by teachers and students is not necessarily exclusively English (Borg, 2015). In most courses taught in English, the students' first language is often used alongside English, with significant variation across institutions and teachers (Galloway et al., 2017).

Regarding EMI research in secondary schools, Kimura et al. (2023) conducted a classroom analysis of IB mathematics in Japan. They found that approximately 40% of classroom discourse was in English and 60% in Japanese. They showed that in inquiry activities, particular consideration was given to reducing the load on students and teachers in processing instruction, interaction, and subject learning through a second language, using students' first language. Other studies, such as those by Yamazaki (2016) and Watanabe et al. (2019), examined EMI implementation in English classes in high schools. However, the studies were short-term interventions. Few studies have explored teachers' long-term experiences with EMI

Secondary schools differ significantly from tertiary education in terms of curriculum, teaching frequency and students' stage of development. The current study focused on long-term EMI practices in multiple subjects in secondary schools to reveal the nature of EMI practice. It aims to clarify the internal dynamics of EMI teaching in secondary schools from teachers' perspectives.

Language support for students' second language

Translanguaging facilitates students' production of content words and improves grammatical accuracy (Wang & Li, 2022). Similarly, using native language exemplars to explain more complex concepts can enhance students' professional vocabulary and motivation (Troedson & Dashwood, 2018). These findings underscore the value of incorporating students' native language to facilitate second-language acquisition and content learning.

The IB's approach to language

The IB recognises language as crucial to self-formation and identity. According to the IB document *Learning in a Language Other than Mother Tongue* (IBO, 2014), language promotes social interaction and cognitive growth, and linguistic diversity in classrooms fosters multilingualism and balanced language development, even when one language is more dominant.

Thus, the IB considers that learners in IB programmes in a language other than their mother tongue can become highly proficient and well-rounded multilingual speakers. By participating in language activities within the IB programme, students develop critical linguistic awareness, enabling them to use different languages effectively for the purpose and audience, and to gain insight into others' language choices (IBO, 2014). Li (2018) also emphasised that a learner's first language can be used as a mediating tool to create effective learning environments for second-language acquisition. Figure 1 outlines scaffolding methods to support students' learning in a non-native language.

Figure 1: Methods of scaffolding in second-language learning

- Visual aids
- Graphic organisers
- Demonstrations
- Dramatisation
- Small, well-structured collaborative groups
- Instructions and utterances tailored to learners' language levels

Source: IBO (2014).

The IBO (2014) states that activating students' understanding in their native language is necessary because of their different learning experiences and background knowledge. For these reasons, the IB envisions the use of multiple languages and, where appropriate, Japanese to stimulate students' understanding. Furthermore, scaffolding strategies help link subject-specific knowledge with students' existing understanding and must be adapted to the learning characteristics of each discipline. Moreover, respecting diverse linguistic and individual

differences necessitates effectively incorporating collaborative activities, targeted scaffolds and instructional strategies that facilitate self-formation and identity development. In summary, previous research highlights the effectiveness of integrating English and native languages in instruction, an approach valued by the IB. This research aims to shed light on EMI in IB schools in Japan, thereby helping address the EMI challenges faced by Japanese secondary education.

METHODS

This study was conducted as part of the MEXT-commissioned "Research Project on the Educational Impact of the International Baccalaureate (IB)", which investigates the implementation and effects of the IB in Japanese secondary schools. Within that project, the present study focused specifically on teachers' experiences with long-term EMI implementation in DLDP schools. We focused on public school teachers and interviewed 17 who taught English to students aged 16-18, as shown in Table 1. We selected one school each from Metropolitan Area A, Regional Central City B, and Regional City C and interviewed teachers for the listed subjects.

Table 1: **Basic interviewee information**

	Subjects taught	Nationality	Teaching experience (IB teaching experience)	Language experience
A	English	U.S.	20 years (6 years)	Native English speaker
	Arts	Japan	6 years (6 years)	Lived in the U.S. (12 years)
	Mathematics	Sri Lanka	14 years (6 years)	PhD in English
	Mathematics	Japan	1 year (1 year)	Lived in Singapore (5 years)
B	Physics	Japan	27 years (4 years)	Overseas experience (3 years in Malaysia)
	Mathematics	Japan	19 years (3 years)	No overseas experience
	Mathematics	Indonesia	4 years (0.5 years)	Studied in English (local university)
	Chemistry	Pakistan	9 years (4 years)	Studied in English (local university)
	English	China	3.5 years (3.5 years)	Studied in Canada
	Geography	Vietnam	4 years (4 years)	Learning in English (local university)
C	English	Japan	20 years (3 years)	Short-term study abroad experience (1 month in the US)
	Mathematics	U.S.	13 years (6 years)	Native English speaker
	Mathematics	Japan	18 years (4 years)	No overseas experience
	English	U.S.	10 years (3 years)	Native English speaker
	Mathematics	Japan	15 years (9 years)	No overseas experience
	Mathematics	Japan	6 years (3 years)	No overseas experience
	English	Japan	6 years (3 years)	Studied in the UK (1.5 years)

Note. IB = International Baccalaureate.

Interviewee selection

Using purposive sampling, we selected schools and recruited current DLDP teachers who taught at least one IB subject in English, focusing on trends in Japanese EMI subjects (Kimura et al., 2024) to ensure variation across subjects, contexts, and backgrounds. We interviewed as many EMI subject teachers as possible, providing a balanced representation from other subjects. In addition to the interviews, we spent eight hours at each school observing classes and learning about the school to familiarise ourselves with the situation.

At the time of the survey, School A in the metropolitan area had its first graduating cohort and was entering its first university entrance examination cycle. The school offered English, arts and mathematics classes in English. Schools B and C had their second graduating cohorts during our survey period. School B (Regional Central City) worked with local foreign teachers and offered second-language acquisition, science and mathematics classes in English. School C (Regional City) responded to diverse career requests, including attending university abroad, and offered English and mathematics classes in English. All schools had both IB and non-IB classes, reflecting efforts to extend IB methodologies to general education. Moreover, as per the rotation system in public schools, all teachers were expected to be transferred to non-IB schools in the coming years, where they were encouraged to implement inquiry-based teaching practices. Figure 2 presents the questions used in the semi-structured interviews with teachers. Each interview lasted approximately 30 minutes.

Figure 2: Interview items

[Things to keep in mind and guidance]

1. Are there any challenges in teaching a second language?
2. Is there anything you are aware of?

[Status of understanding]

1. What do you think of balancing subject content and language development?
2. Are there any challenges when deep understanding and abstract thinking are required?
3. What do you think of the need for Japanese language support?

[Teacher growth and teaching examples]

1. Based on your experience as a language teacher, how do you see your own growth?

Additionally, please share any examples of successful teaching in English.

School administrators first informed eligible teachers about the study. Participation was entirely voluntary. No incentives were provided. All participants provided informed consent before the interviews. To ensure confidentiality, all names, institutions and identifying information were anonymised. The study was approved by the institutional ethics committee associated with the larger MEXT project.

Analysis Framework

This study employed a narrative enquiry approach to capture the subjective experiences of teachers implementing EMI within the IB framework. Narrative enquiry can offer rich insight into teachers' subjective experiences as they enact and make meaning of a new curriculum area. Such research aims to understand how stories are constructed, the contexts in which these narratives emerge, and their subjective and social meanings (Andrews et al., 2013). For example, Browning et al. (2025) conducted a narrative analysis of the professional identities of three intercultural curriculum teachers from urban, suburban and rural areas in Australia. Palmer (2024) conducted interviews with administrators, teachers, students, and parents in IB-authorised schools in the Caucasus region, analysing narrative characteristics using a categorisation scheme. In the present study, to enhance validity and reliability, we utilised Williams and Moser's (2019) three-step framework (open, axial, and selective coding). The primary researcher performed the initial coding. A second coder – a project researcher who possesses expertise in the field of EMI/IB education – aided with the axial and selective coding stages. Narrative inquiry helped us interpret the teachers' stories, while grounded theory coding enabled us to systematically develop categories. Thus, the two approaches complemented each other by combining interpretive depth with analytical rigour.

Regarding the grounded theory method (GTM) (Glaser & Strauss, 1967), Williams and Moser (2019) stated that researchers should apply guiding principles that intentionally enable them to "codify and publish their methods for generating theory (p. 46). While details of the procedure can be modified to suit researchers' needs, they must keep in mind certain principles on which GTM proponents agree (Larossa, 2005). In this study, as noted, we used the three-step coding process of open, axial and selective coding to inductively re-differentiate and grasp the reality of teachers' teaching in English. Open coding is a process by which researchers identify distinct concepts and themes for classification, and axial coding further refines and categorises themes. Selective coding is the process by which a researcher selects categories of data organised by axis coding and consolidates them into a cohesive and meaningful representation. We performed the three coding processes in a circular manner, continuously re-reading the data collected during each process. In constructing meaning, we interpreted the interview data by relating the emerging codes to theoretical perspectives on EMI and language-related load, while grounding the interpretation in the specific school and classroom contexts in which the participants worked.

Hereafter, { } denotes a theme, < > a category, [ ] the code, and ' ' the interview data.

RESULTS

Teachers' perceptions of themselves

Narratives on <Teaching Examples>

Specific examples: Several teachers described how they adapted explanations to help students overcome cultural or linguistic obstacles in EMI classrooms. The English teacher noted that

students struggled to understand cultural references when discussing Black culture and, therefore, used familiar Japanese youth-culture examples and Socratic questioning to bridge understanding. A mathematics teacher similarly pointed out that students easily understood references such as rock-paper-scissors but required clarification for unfamiliar games mentioned in English word problems. The art teacher highlighted the need to teach English punctuation conventions, such as comma placement, when students wrote their process portfolios. A chemistry teacher explained that he first provided scenario-based questions and had students write initial ideas before refining their answers.

Teachers also described using visual and technological tools to support comprehension. One mathematics teacher used spatial software to help students "see" concepts in motion, while another mathematics teacher observed that students collaborated or used technology independently when they did not understand written problems. A mathematics teacher added that teaching mathematics in English motivated students to attempt more English output, noting that "students do use English because teachers make an effort to teach mathematics in English".

Interdisciplinary initiatives: the English teacher explained that classes sometimes evolved into sociology-like discussions when integrating cultural and analytical perspectives across subjects. Mathematics teachers reported coordinating content with English instruction to avoid introducing new mathematical and linguistic concepts simultaneously. The physics teacher also commented that his own English improved through teaching science in English, and an art teacher noted that EMI was partially introduced in Grades 1 to 4, enabling students to practise making choices and articulating reasons in English before the DLDP years.

Things to keep in mind: Teachers reported varied approaches to balancing Japanese and English. One English teacher sometimes explained grammar in Japanese to support less proficient learners, whereas another English teacher emphasised overall communicative clarity rather than grammatical precision. Several non-English subject teachers encouraged students to speak initially in Japanese and then convert their thinking into English. Conversely, a mathematics teacher expressed a commitment to maintaining English as the primary medium to foster students' ability to explain concepts in English.

Teachers also mentioned the importance of managing technical terminology. One mathematics teacher ensured that he fully understood English terms before class, while the art teacher taught key vocabulary in both languages. Teachers across subjects reported clarifying whether student errors stemmed from conceptual misunderstandings or English phrasing, helping students distinguish between linguistic and disciplinary accuracy.

Narratives on <Perception & Experience>

***Teachers' perceptions of learning*:** an English teacher stated that their role was not only to teach grammar and vocabulary but also to guide students in learning these elements independently. Another English teacher appreciated the IB's emphasis on speaking and conversational skills, noting that this orientation encouraged more interactive classroom

practices. Several non-English subject teachers described how their initial anxiety about using English gradually diminished. One mathematics teacher noted that he shifted from trying to use 'perfect English' to prioritising clear communication through simpler expressions.

Teachers also shared their experiences of challenges in EMI classrooms. The English teacher reported difficulties interpreting aspects of American school culture embedded in IB texts. A mathematics teacher noted that preparing English explanations for lessons was often more demanding than preparing the mathematical content. Non-English subject teachers highlighted struggles with supporting students' academic writing, particularly for extended tasks such as process portfolios and internal assessments.

Teachers' perceptions of challenges: An English teacher remarked, "Sometimes I can't quite grasp the culture of American schools", pointing to cross-cultural difficulties. Another challenge for teachers in non-English subjects was supporting the academic writing process, indicating struggles with teaching dissertation writing in English.

Interdisciplinary teaching, a key IB feature, was recognised as challenging when there was a lack of clear role distribution between English and subject teachers. A mathematics teacher stated that using examples and diagrams made them feel they could communicate with students, even if only in English, suggesting that visual aids could compensate for limited language fluency. As mentioned earlier, one of the teachers commented, "Preparing English expressions for a class is more difficult than preparing for mathematics", highlighting increased preparation demands.

Teachers' experiences and growth: Several teachers described how teaching in English prompted them to deepen their disciplinary and linguistic knowledge. A mathematics teacher reflected that English terminology sometimes differed from what he had learned in Japan and that adapting to these differences expanded his understanding. The art teacher, who had overseas study experience, emphasised that multinational examples and artists were consciously selected to broaden students' perspectives—an awareness she attributed to her intercultural experiences. Another mathematics teacher noted that teaching in English made him more attentive to structuring explanations logically and persuasively.

Teachers also commented on students' linguistic challenges and the need for scaffolding. A science teacher explained that even students with strong English-speaking skills sometimes misinterpret simple written questions, leading to incorrect answers. Another non-native English-speaking teacher noted that while he could write academic English fluently, he empathised with students' anxiety about speaking English in front of peers, recalling similar feelings earlier in his career.

Narratives on <Action>

Teachers' responses: Several teachers described how they adjusted their instructional practices to support students' comprehension and emotional confidence in EMI contexts. A non-native teacher of non-English subjects explained that he often engaged in deeper thinking using his first language, noting that students similarly relied on Japanese when grappling with abstract

concepts. The same teacher emphasised the importance of establishing trust, describing the classroom as a "safe zone" where students felt comfortable expressing uncertainty. The art teacher similarly encouraged students to prioritise clarity over the use of sophisticated vocabulary, advising them that effective communication mattered more than producing difficult English expressions. Mathematics teachers reported deliberately setting aside time to review key English terminology and to prompt students to reflect on concepts using essential vocabulary.

Collaboration between teachers: Both Japanese and foreign teachers described coordinated efforts to strengthen lesson planning and classroom communication. In several schools, co-teaching pairs aligned their lesson content by sharing strengths: Japanese teachers provided disciplinary clarity, while native or near-native English-speaking teachers supported natural phrasing and questioning techniques. A mathematics teacher noted that native English-speaking colleagues used expressions that differed from textbook English, offering valuable input on authentic language use. Conversely, native English-speaking teachers reported learning from Japanese colleagues' approaches to scaffolding problem-solving and posing probing questions. Such collaborative exchanges enabled teachers to refine their instructional strategies and adapt EMI practices to their students' needs.

4.2. Teachers' perspectives on their surroundings

Narratives on <Students>

Students' challenges: teachers consistently noted that linguistic factors affected students' ability to demonstrate content understanding. The chemistry teacher observed that even students with strong spoken English occasionally misinterpreted simple written questions, resulting in mistakes unrelated to subject knowledge. The art teacher similarly noted that producing written texts, such as process portfolios, posed difficulties because students needed to articulate their research and decision-making in English. Mathematics teachers across schools reported that students often understood concepts in Japanese but lacked the English expressions needed to accurately convey their thinking.

Students' behaviours, understanding and significance: several teachers described gradual improvement in students' ability to interpret English-language mathematical and scientific terminology. A mathematics teacher remarked that both students and teachers became more accustomed to the "English of mathematics" over time, enabling students to express ideas more willingly. Teachers also noted that learning subjects through English had compounding benefits; students not only progressed in the subject but also expanded their English proficiency through repeated exposure to disciplinary language.

Students' attitudes and affective aspects: Teachers reported that initial reluctance to participate in discussions diminished as students became more familiar with EMI classroom routines. A mathematics teacher observed that students began to engage naturally in peer discussions,

showing increased confidence. Another mathematics teacher believed that students felt motivated by the sense of accomplishment that came from explaining ideas in English. Conversely, an English teacher noted that some students continued to doubt their performance even when they communicated effectively, emphasising that sustained encouragement remained essential.

Narratives on <Assessments>

Assessment preparation: Teachers noted that the linguistic demands of IB assessments often shaped their instructional priorities. The art teacher reported that students' written work sometimes lacked the formality required in IB assignments, indicating the need for explicit instruction in academic English. A mathematics teacher observed that topics such as statistics, which require reading and interpreting text, took students longer to master because linguistic comprehension influenced their ability to solve problems accurately. The geography teacher noted that IB assessments emphasise written responses rather than speaking, making proficiency in written English essential for demonstrating understanding. Conversely, an English teacher highlighted the value of interview-style practice tests, explaining that one-on-one, recorded discussions helped students prepare for internal assessments and build confidence, though they required significant preparation time.

Narratives on the <System>

Structure and characteristics of the school: Teachers described institutional factors that affected EMI implementation. A mathematics teacher mentioned consciously using English whenever possible in reading and writing tasks, while another teacher noted that the IB's allowance of calculators helped students focus on problem-solving rather than linguistic hurdles.

Characteristics of subjects and curriculum: Science and geography teachers emphasised the importance of interactive and visual approaches, such as prompting students to imagine scientific processes or break down complex IB-style questions, to align with inquiry-based expectations embedded in the curriculum.

Teachers also reported several ***institutional challenges***. A teacher with no overseas experience noted that EMI can be difficult for Japanese teachers without overseas experience, particularly when co-teaching with native English-speaking colleagues whose communication styles differ. Native English-speaking teachers sometimes questioned whether students with limited English skills should participate in the DLDP, whereas Japanese teachers expressed a commitment to including such students and supporting their growth. These tensions highlighted broader challenges related to student selection, teacher assignment and ensuring adequate support structures within the school system.

DISCUSSION

Incorporating native language instruction in the classroom

Regarding language use in the classroom, the IB encourages activating students' native language, and teachers provide instruction in Japanese as needed. Mathematics teachers spoke of the pressure to teach in English and use English correctly. However, effective instruction that includes Japanese without undue pressure is possible. As Borg (2015) noted, classroom language often includes both Japanese and English. Narratives indicated that lessons were taught using a blend of Japanese and English, particularly as final examinations approached. Students were often able to grasp content in Japanese and complete problems in English. Additionally, teachers also noted their own growth as a result of teaching in English, such as becoming more fluent in English classroom vocabulary.

Teachers in the metropolitan area tended to have more university experience in English and more experience living abroad compared with teachers in regional areas, as shown in Table 1. As Galloway et al. (2017) pointed out, the language of teaching varies across institutions and teachers. In this case, schools in the metropolitan area taught primarily in English, with students adapting to this teaching style, whereas teachers in regional areas often selected the instructional language based on student needs.

Additionally, foreign teachers who were second-language English speakers with first-hand experience of learning in English encouraged students to use their mother tongue. To boost students' speaking confidence, they encouraged them to speak Japanese—a language the teachers did not understand—to help them understand the content. Thus, sharing the experiences of foreign teachers who have learnt English as a second language could help enhance students' positive attitudes towards speaking, even if they make mistakes.

Characteristics of subject teachers' strategies

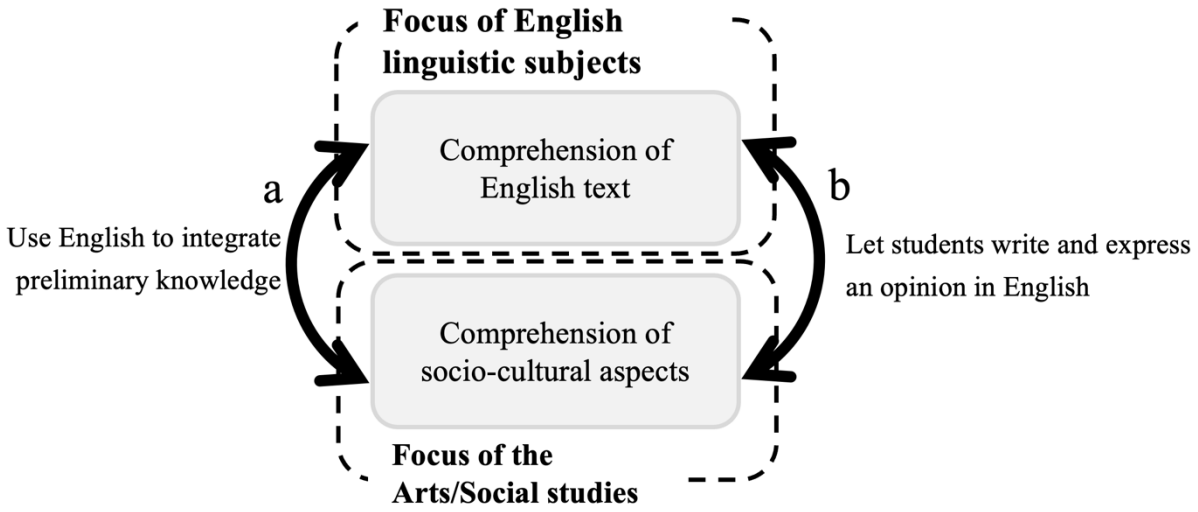
English language teaching, especially in the IB context, involves not only language acquisition but also international socio-cultural learning. Teachers described challenges when students struggled to understand cultural contexts different from their own, but noted the necessity of bridging this gap to bring foreign cultural aspects into students' use of English. Such methods enhance both language acquisition and socio-cultural understanding, which are key areas of focus in the DLDP final assessments (see Figure 3a).

In English and other subjects, teachers used written texts with socio-cultural content and visual aids, such as diagrams, as scaffolding, as recommended by the IBO (2014), to improve comprehension. As Bonar et al. (2025) highlighted, multiple multimodalities were integrated and presented to students. For DLDP final examinations in the arts and social studies, where students must interpret texts and discuss the content of a subject, lessons in English will enhance their ability to write and express opinions in English. Moreover, from a cross-curricular

perspective, the exploration of global topics in arts classes allows students to transfer socio-cultural knowledge across subjects, including English (see Figure 3b). Additionally, students' exploratory learning of socio-cultural aspects in English classes can be applied to other relevant classes.

Figure 3 shows the EMI focus for English, the arts and social studies. The arrows represent the teaching strategy for problem solving, including linguistic and socio-cultural factors. The areas of focus correspond to the IB's final exam components.

Figure 3: Focus of teaching English, the Arts, and Social Studies

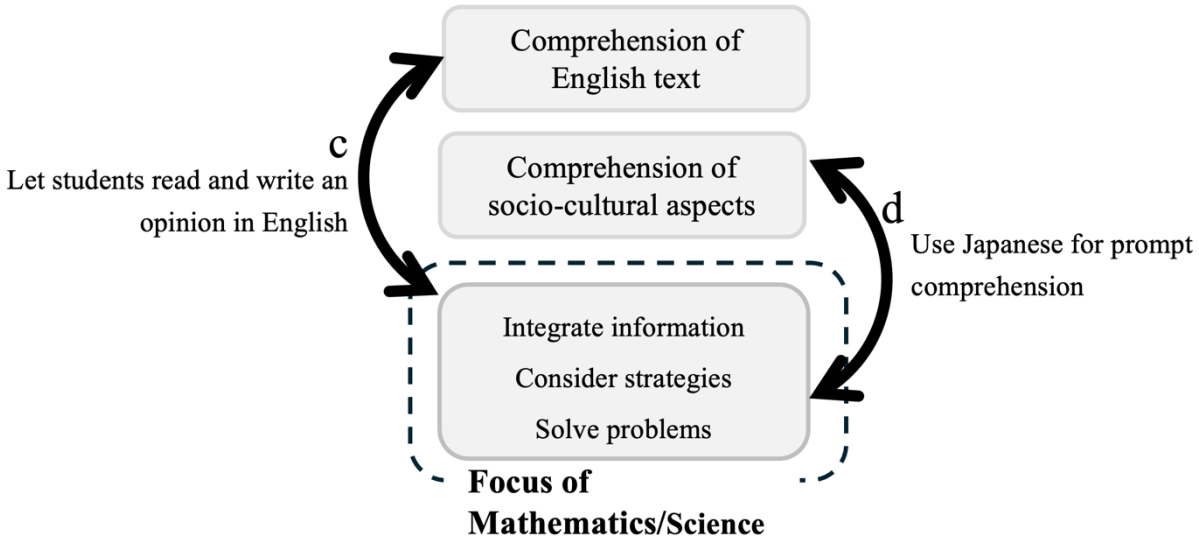


In linguistic subjects, the focus is on comprehending English text. Concurrently, as the left arrow (a) in Figure 3 shows, comprehension of socio-cultural aspects is also emphasised. Therefore, the focus is on English language learning, with both linguistic and socio-cultural aspects. The right arrow (b) in Figure 3 shows that the arts and social studies also focus on comprehending English text. Common socio-cultural topics promote interdisciplinary learning among English, the arts, and social studies.

By contrast, final examinations in mathematics, science and other subjects require students to understand and integrate the content of written problems, consider solutions, process calculations and prepare and write answers. The emphasis in mathematics and science is less on reading comprehension of English texts and more on the computational processing involved in integrating text questions and solving problems, primarily in assessments (see Figure 4c). The teachers' narratives suggest that they implement these practices with these considerations in mind.

Mathematics and science often require strategic use of Japanese to comprehend socio-cultural aspects, especially at the introductory stage, depending on the classroom environment (see Figure 4d). As with teaching English, the arts and social studies, the focus of teaching mathematics and science aligns with the IB's final exam components.

Figure 4: Use of Japanese to understand socio-cultural aspects in Mathematics and Science



In schools where students had higher English skills or teachers with overseas experience, entire classes were taught in English using examples and illustrations. In other cases, particularly in mathematics, students relied on Japanese to interpret and solve problems, especially exam-focused sections. Cross-curricular integration was more common between mathematics and science learning because the mathematics guide primarily highlights links with science.

Science teachers noted that even high-performing English students may struggle with science content. In their first classes, mathematics teachers mentioned the need to start with mathematics that students already know to reduce the load, "making sure that neither mathematics nor English is new to them. Translanguaging involves understanding all the language resources of a multilingual student as one integrated repertoire that transcends language categories (Kano, 2016). For example, in a probability and statistics lesson, teachers scaffolded comprehension through Japanese before transitioning to English problem-solving. This suggests that load in EMI mathematics and science occurs particularly at the stage of understanding the content of English texts. Therefore, teaching in both languages can help students maintain concentration and deepen their understanding of the subject content.

Thus, the teachers' narratives reveal that subject learning in English is shaped not only by IB assessment expectations but also by contextual factors that vary across schools. This pattern reflects issues reported in IB EMI settings globally, indicating that the classroom adaptations observed here align with broader comparative education discussions on how international programmes are mediated locally.

CONCLUSION

The study offers implications not only for Japanese IB schools but also for EMI implementation in other multilingual contexts. Because many non-English-dominant countries offer the IB or similar EMI programmes, the experiences of Japanese teachers, particularly their strategic use of L1, load management, and development of bilingual pedagogical practices, offer transferable insights for supporting teachers elsewhere.

The findings revealed that DLDP teachers attempt to manage EMI by implementing pedagogical adaptations. For instance, mathematics and science teachers noted that the subject focus is on computation and reported using a blend of Japanese and English to quickly explain English-language problems.

While the IB framework emphasises the role of language learning in students' broader personal development, this study did not collect direct evidence on identity formation. The narratives instead reflect teachers' perceptions of changes in students' confidence and willingness to use English. Within this scope, the findings suggest that valuing Japanese and English in IB classrooms can support biliteracy and appreciation of cultural diversity. Although this study focused on subjects taught mainly in English, it recognises that IB classrooms operate with varied language practices.

Acknowledging the nature of qualitative inquiry, our study presents several methodological limitations. The purposive sample captured variation in teaching experience and linguistic background (native, non-native, bilingual, and domestic-only Japanese speakers), which, while valuable for breadth, inherently limited the depth of exploration of specific subject-language dynamics. This diversity means the findings reflect a mosaic of localised practices rather than comprehensive patterns across all EMI subjects. Furthermore, the self-selection bias in interviewee recruitment, with a notable preference for mathematics and the arts among Japanese teachers, resulted in a narrative that underrepresents key humanities and science disciplines. This focus may have skewed the emphasis toward pedagogical strategies, with visual scaffolding and procedural instruction often prioritised over the development of complex academic discourse. Future research is thus required to triangulate these findings by strategically sampling subjects across the full disciplinary spectrum and by exploring unresolved pedagogical issues in professional development engagement and the influence of students' diverse linguistic backgrounds on learning outcomes. Ultimately, a sustained, international perspective integrating practices from the broader Asian context is necessary to address the challenges of EMI expansion in the Japanese IB setting.

In recent years, the implementation of the IB has spread to countries such as South Korea, and subject learning in English has become popular in neighbouring Asian countries. By sharing Japan's situation and challenges, we hope to help improve understanding of the future development of EMI in Asia.

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