



Unlocking EMI Listening Skills: ASIAN EFL Teachers' Insights on the Power of BYOD

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Received 20/02/2025 Received in revised form 24/05/2025 Accepted 07/06/2025	ABSTRACT This study investigates the Bring Your Own Device (BYOD) implementation and its pedagogical impact in enhancing students' English listening skills in English as a Medium of Instruction (EMI) contexts across Asian countries. Data were collected from 147 English language teachers from Thailand, Malaysia, Vietnam, Indonesia, Taiwan, China, and the Philippines through online surveys. The in-depth interviews were conducted with 49 selected participants. The quantitative data were analyzed using SPSS, while qualitative data underwent thematic analysis. The findings reveal both opportunities and challenges in applying BYOD, including increased student engagement, risks of distraction, and the need for equitable access to technology. Teachers emphasized the importance of structured guidelines to mitigate overreliance on devices and promote critical thinking. The study also suggests that successful BYOD integration requires comprehensive teacher training, inclusive policies, and alignment with educational frameworks such as the Technology Acceptance Model (TAM). Keywords: BYOD, English as a Medium of Instruction (EMI), English listening skills, Asian teachers' perceptions, technology in education

Introduction

The rapid advancement of information and communication technology (ICT) has significantly impacted society, particularly the education sector. Language educators, especially English teachers, continuously strive to enhance the effectiveness of their teaching approaches through purposeful and research-driven efforts. Their goal is to create an enjoyable and engaging learning experience for students, often by incorporating diverse activities such as games, songs, and compelling stories into the classroom. Over time, the integration of technology, including computers and internet-based tools, has further transformed education. It has been positioning technology-enhanced learning as a vital component of modern pedagogy. One innovative approach that has gained traction is the Bring Your Own Device (BYOD) methodology, which allows students to use their personal devices in the classroom for educational purposes (Jehma & Pankhoom, 2022). This approach has been applied not only in language learning but also across various disciplines, enabling a more interactive and dynamic learning environment than traditional methods (Chanyawudhiwan & Mingsiritham, 2022). Specifically, BYOD serves as a classroom management strategy that fosters collaboration and engagement. Scholars like Hamza and Noordin (2013) argue that BYOD has the potential to create more stimulating and participatory experiences for both learners and educators. Although the effectiveness of technology integration in education has been extensively examined across diverse contexts and disciplines (Che Mustaffa & Sailin, 2022), much of the research has focused on English skills such as reading, writing, and speaking. In contrast, limited studies have investigated the effectiveness of BYOD in teaching English listening skills, particularly within unique educational environments (Chilton et al., 2024). In Asian countries, research on BYOD remains scarce, especially regarding its application in developing students' English proficiency.

This study, therefore, aims to address this gap by exploring how Asian EFL teachers perceive the implementation of BYOD in EMI classrooms for enhancing students' English listening skills through the following research questions:

1. What are the perceived opportunities and challenges of using BYOD in EMI classrooms, particularly for developing listening skills?
2. How do device preferences influence the effectiveness of BYOD in enhancing listening skills among students?
3. What role does teacher experience and familiarity with BYOD play in its successful integration into EMI classrooms?

4. How does BYOD foster student autonomy and engagement in listening activities, and what barriers exist to its implementation?
5. What strategies do teachers recommend for distractions and promote equitable access to technology in BYOD-enabled EMI classrooms?

Literature Review

Bring Your Own Devices

The concept of Bring Your Own Device (BYOD) refers to a classroom management approach that enables students to bring and utilize their personal devices for educational purposes (Chanyawudhiwan & Mingsiritham, 2022). This approach has gained popularity largely due to the accessibility and ubiquity of the internet. The internet facilitates the integration of multimedia resources such as videos and audio into teaching, catering to the preferences of the current generation of learners, and promotes a flexible learning environment. This allows students to use their devices while maintaining classroom management and discipline (Shafik, 2024). In addition, the increasing digital literacy of teachers has further fueled the adoption of BYOD, particularly in English language classrooms. Here, BYOD is seen to enhance engagement and active learning, and it is regarded as a pedagogical approach that fosters active interaction between educators and students. English instructors, for instance, can design activities that involve real-time engagement and collaborative exercises facilitated by students' personal devices (Jehma et al., 2024). This demonstrates the effectiveness of this strategy by integrating devices such as iPads, laptops, and smartphones into the classroom. The students studying in such contexts were tasked with watching instructional videos before attending class, answering comprehension questions, and collaboratively solving problems using their devices. This approach allowed students to learn at their own pace, whether through individual exploration or group discussions (Clark et al., 2021).

BYOD has also proven effective across various disciplines, having been applied in math classes such as Algebra and Trigonometry, demonstrating how instructional videos can condense complex topics into brief lessons-freeing up class time for deeper engagement (Borba et al., 2016). It was also implemented in electrical engineering courses, where students were able to progress through tasks more efficiently and cover material in greater depth (Zhang, 2013). Extensive research has been conducted on various aspects of teaching English skills, such as reading, speaking, and writing. Specifically, digital tools like blogs and wikis have been shown to enhance students' proficiency in English by enabling them to share ideas with others (Syaubari et al., 2024). A study involving a few teachers revealed that

students' English performance improved significantly, with more than a half of the teachers reporting that the adopted approach transformed their teaching methods. This transformation fostered greater collaboration among students and between students and teachers, particularly during feedback sessions (Thomas, 2020). The research has also demonstrated that integrating digital tools into teaching can significantly improve students' English skills. This is particularly true for writing, as the classroom strategies incorporating devices such as iPads, laptops, and smartphones have proven to be highly effective in English learning environments. Some teachers have shifted away from traditional lecture-based methods by adopting new approaches, such as encouraging students to bring their own devices to class. Liu (2023), for instance, noted that some educators shifted from traditional lecture-based teaching to BYOD-supported methods, encouraging students to bring their devices to class and complete homework assignments independently. Students expressed positive attitudes toward this approach, highlighting its convenience in helping them improve vocabulary and access relevant content promptly via the internet. The integration of mobile applications into BYOD further enhances its effectiveness.

Technology Acceptance in English as a Medium Instruction Context

Technology Acceptance Model (TAM), developed by Davis et al. (1989), has been widely used to explain and predict users' acceptance and adoption of new technologies, including those aimed at enhancing English language learning. The TAM's core constructs, perceived usefulness (PU) and perceived ease of use (PEOU), have been extensively applied in educational contexts to understand how learners engage with technology for language acquisition. Although TAM has been influential, it has also faced criticism for its limited scope and inability to fully capture the complexity of technology adoption in educational settings. Recent studies have expanded TAM by incorporating additional factors such as perceived enjoyment, self-efficacy, and social influence. These factors are particularly relevant in the context of mobile-assisted-language learning (MALL) and bring your own devices (BYOD) methods, which have been applied to explore the development of various language skills, including listening, speaking, reading, and writing (Thomas, 2020).

In the context of English medium instruction or EMI context, the use of English as the primary language of instruction for academic subjects in regions where it is not the native language of most of the population (Macaro et al., 2018) - EMI research often focuses on three key areas: English language proficiency, pedagogical practices, and broader aspects such as perceptions and attitudes, including the perspectives toward integration of

technology. Studies have shown that mobile applications, when aligned with TAM principles, can significantly enhance listening skills by providing authentic materials, diverse accents, and interactive content. Research has demonstrated that mobile apps with features such as podcasts, audiobooks, and speech recognition tools are perceived as both useful and easy to use, which leads to increased engagement and improved listening proficiency (Barjesteh & Isaee, 2024). These findings align with TAM's emphasis on PU and PEOU as key factors of technology adoption. The development of speaking skills through mobile applications. Tools such as language exchange platforms and speech-based apps have been found to enhance learners' speaking abilities by providing opportunities for practice and feedback (Zhang, 2013). Therefore, the perceived usefulness and ease of use are critical factors in determining learners' willingness to adopt these tools. These factors help reduce anxiety and increase confidence in speaking (Huang et al., 2024). Additionally, TAM has been used to examine the role of mobile technologies in improving reading and writing skills. E-books, annotation tools, and writing apps have been shown to facilitate vocabulary acquisition, reading comprehension, and writing fluency, with PU and PEOU playing a significant role in their adoption (Liu, 2023). In brief, TAM provides a valuable framework for understanding how learners adopt and utilize mobile technologies to develop English language skills. By incorporating factors such as perceived enjoyment, self-efficacy, and cultural context, researchers can enhance the model's applicability to language learning.

Methodology

Participants

The study included 147 English language teachers from various campuses across Asian countries such as Thailand, Malaysia, Vietnam, Indonesia, Taiwan, China, and the Philippines (see Table 1). The teachers were purposively selected based on their experience teaching EMI courses at the tertiary level, ensuring they had direct relevance to the study's focus on BYOD in higher education. They taught university-level students in EMI contexts, where English was the medium of instruction for non-language subjects (e.g., STEM, humanities). Their experience ranged from 0–5 years (18.37%, $n = 27$), 5–10 years (24.49%, $n = 36$), to 11+ years (57.14%, $n = 84$). This distribution allowed for comparative analysis of perceptions across career stages (see Tables 5–7). Notably, experienced teachers (11+ years) reported higher confidence in BYOD's suitability for EMI classrooms ($M = 4.00$, $SD = 1.02$), suggesting that familiarity with technology integration grows with pedagogical tenure. They were then asked

to complete an online survey via Google Forms, focusing on their perceptions of BYOD and their preferred devices.

From the initial pool of 147 participants, 49 English language teachers (33.33%) were selected for in-depth interviews using stratified purposive sampling. This approach ensured proportional regional representation across seven Asian countries-Thailand (n = 9, 18.37%), Malaysia (n = 7, 14.29%), Vietnam (n = 6, 12.24%), Indonesia (n = 8, 16.33%), Taiwan (n = 5, 10.20%), China (n = 6, 12.24%), and the Philippines (n = 8, 16.33%)-mirroring the geographic distribution of the broader sample. To capture diverse pedagogical perspectives, the selection criteria prioritized a balanced mix of teaching experience: early-career (0–5 years), mid-career (5–10 years), and seasoned educators (11+ years). Furthermore, 65% of interviewees held advanced degrees (MA/PhD), ensuring that insights were anchored in rigorous academic training and practical expertise in EMI contexts. This stratified methodology enriched the study’s findings by accounting for variations in technological infrastructure, institutional policies, and cultural attitudes toward BYOD across Asia, while maintaining alignment with the research’s focus on equitable and effective technology integration.

Table 1

Participants from Different Asian Countries

Countries	Frequencies	Percentages
Thailand	27	18.37
Malaysia	20	13.61
Vietnam	18	12.24
Indonesia	23	15.64
Taiwan	15	10.20
China	19	12.93
The Philippines	25	17.01
Total	147 (n)	100.00

Research Tools

Questionnaire

To address the first research objective to explore Asian English teachers’ perceptions of applying the BYOD teaching method, specific device preferences, and its impacts on enhancing students’ English listening skills in EMI classrooms. A 5-point Likert scale questionnaire was utilized to gather data. The questionnaire was designed to ensure comprehensiveness and was divided into two sections: the first focused on teachers’ perceptions of

teaching and learning within the EMI classroom utilizing the BYOD method, while the second centered on their perceptions of language development and its impacts. Specifically, the levels of agreement were categorized as: strongly agree, agree, neutral, disagree, and strongly disagree. Before its implementation, the questionnaire was validated by three experts specializing in English language, education, and educational technology, using the Index of Item-Objective Congruence (IOC) method. Each item was evaluated for clarity, relevance, and alignment with the study's objectives. The experts validated the questionnaire through the IOC. The scores ranged from 0.80 to 1.00, exceeding the acceptable threshold of 0.50, confirming the instrument's validity. To ensure its reliability, the questionnaire was piloted with 20 EMI teachers (excluded from the main study). Cronbach's alpha coefficients were 0.89 (Section 1: BYOD Pedagogy) and 0.91 (Section 2: Listening Skills Development), indicating high internal consistency. The questionnaire was then distributed electronically to 147 language teachers across Asian countries to assess their levels of agreement and perceptions.

Online In-Depth Interviews

To gain more comprehensive insights into the implementation of BYOD in EMI classrooms, in-depth online interviews were conducted with 49 English language teachers from various Asian countries, including Thailand, Malaysia, Vietnam, Indonesia, Taiwan, China, and the Philippines. These participants were selected based on their extensive experience teaching EMI classes. The semi-structured interview format allowed for flexibility, enabling participants to elaborate on their personal experiences and perspectives. The interview questions explored key areas such as the role of BYOD in promoting learning autonomy, challenges related to device usage, the impact on teacher-student interactions, issues of inclusivity and device affordability, and the effectiveness of learning activities when integrated with technology.

Data Analysis

The initial data from the online questionnaires were analyzed using the Statistical Package for the Social Sciences (SPSS) software. After distributing questionnaires, participants' demographic details were summarized using frequency and percentage analyses. Participants' perceptions were examined using mean scores and interpreted according to the Likert Scale. To further enrich the findings, data from the in-depth interviews were analyzed qualitatively, employing thematic and descriptive approaches to gain a deeper understanding. The thematic analysis of 49 in-

depth interviews followed a hybrid (inductive-deductive) approach. Initial codes in the deductive phase were derived from the study's theoretical framework (e.g., TAM, autonomous learning) and research objectives (e.g., BYOD challenges, device preferences). It was followed by the inductive phase, during which the emergent themes (e.g., "cultural reliance on quick answers") were identified through iterative transcripts analysis. The codes were organized using NVivo 12, with codebook definitions (see Table 11) to ensure consistency. The codes were finally consolidated into six themes (e.g., "BYOD as a Tool for Autonomy," "Cultural Challenges") through consensus. Representative quotes were selected to illustrate findings (see Table 12).

Findings and Discussion

The findings from the online questionnaire were analyzed and presented according to the research questions. To answer the research question 1, the analyzed data have been presented in Table 2 regarding general perceptions toward BYOD as a teaching method in EMI classes.

Table 2

General Perceptions toward BYOD as a Teaching Method in EMI Classes

Variables	Numbers of participants (n=147)					Mean	S.D.
	1=	2=	3=	4=	5=		
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree		
	%	%	%	%	%		
I believe the BYOD teaching method is suitable for EMI classrooms.	2.04	2.04	28.57	38.78	28.57	3.90	.92
BYOD encourages active participation among students in EMI classes.	2.04	2.04	14.29	44.90	36.73	4.12	.88
The use of BYOD enhances the engagement of	2.04	2.04	20.41	38.78	36.73	4.06	.92

students in learning activities.							
BYOD helps to address the diverse learning needs of students.	2.04	0.00	16.33	53.06	28.57	4.06	.80
Implementing BYOD in EMI classrooms requires additional technical support.	4.08	2.04	18.37	32.65	42.86	4.08	1.04
General Perceptions of BYOD (Overall)						4.04	.78

The general perceptions of BYOD shown in Table 2 indicate a positive stance, with an average score of 4.04 (SD = 0.78). The highest agreement was observed in statements suggesting that BYOD enhances engagement in learning activities (36.73%, M = 4.06, SD = 0.92) and addresses students' diverse learning needs (28.57%, M = 4.06, SD = 0.80). This finding aligns with Haleem et al.'s (2022) study, which emphasizes the role of tools and mediation in learning. BYOD, as a technological tool, facilitates interaction and scaffolding, leading to more effective language acquisition. Moreover, the finding that BYOD encourages active participation (36.73%, M = 4.12, SD = 0.88) supports the notion that digital tools promote constructivist learning environments, where learners engage more autonomously in their educational process (Shafik, 2024). However, the need for additional technical support (42.86%, M = 4.08, SD = 1.04) highlights a potential barrier to full implementation. This reflects broader findings in terms of technology acceptance (Barjesteh & Isaee, 2024), which suggests that ease of use and perceived usefulness affect adoption rates.

To answer the research question 2-how device preferences influence the effectiveness of BYOD in enhancing students' listening skills-the analyzed data are presented in Table 3 and Table 4. Table 3 displays the perceptions regarding device preferences for implementation in EMI classes while Table 4 presents the perceptions of BYOD's impact on English listening skills in EMI classes.

Table 3

Perceptions toward Device Preferences for BYOD Implementation in EMI Classes

Variables	Numbers of participants (n=147)					Mean	S.D.
	1=	2=	3=	4=	5=		
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree		
	%	%	%	%	%		
Smartphones are the most effective device for implementing BYOD in EMI classrooms.	4.08	8.16	26.53	36.73	24.49	3.69	1.06
Tablets are more suitable than laptops for enhancing students' listening skills.	2.04	4.08	32.65	40.82	20.41	3.73	.91
Students prefer their own devices for listening activities in EMI classrooms.	2.04	6.12	26.53	40.82	24.49	3.80	.96
Device compatibility impacts the success of the BYOD teaching method.	2.04	4.08	8.16	48.98	36.73	4.14	.89
Teachers should have a say in the type of devices students use in EMI classes.	4.08	10.20	18.37	42.86	24.49	3.73	1.08

Perceptions of Device Preferences (Overall)	3.82	.71
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The perceptions of device preferences ($M = 3.82$, $SD = 0.71$) shown in Table 3 reveal that smartphones were rated as the most effective device for implementing BYOD (24.49%, $M = 3.69$, $SD = 1.06$), followed by tablets which were considered more suitable than laptops for listening skills enhancement (20.41 %, $M = 3.73$, $SD = 0.91$). The preference for smartphones aligns with the mobile-assisted language learning perspective (Che & Sailin, 2022), which posits that mobile devices offer greater flexibility and accessibility in language learning. Additionally, device compatibility was considered crucial to the success of BYOD (36.73 %, $M = 4.14$, $SD = 0.89$). The finding is consistent with research on digital equity in education (Selwyn, 2016), emphasizing that varied device capabilities may lead to inconsistencies in learning experiences. The finding that teachers should have a say in device selection (24.49%, $M = 3.73$, $SD = 1.08$) suggests a need for guidelines to standardize technology use in EMI settings.

Table 4

Perceptions toward the Impacts of BYOD on English Listening Skills in EMI Classes

Variable	Numbers of participants (n=147)					Mean	S.D.
	1= Strongly disagree	2= Disagree	3= Neutral	4= Agree	5= Strongly agree		
	%	%	%	%	%		
The BYOD teaching method improves students' English listening comprehension.	2.04	2.04	26.53	36.73	32.65	3.96	.93
Using devices in class enhances students' ability to follow	2.04	2.04	16.33	44.90	34.69	4.08	.89

English audio materials.							
Students are more confident in using English after BYOD-based listening activities.	0.00	6.12	30.61	36.73	26.53	3.84	.90
BYOD allows students to learn at their own pace during listening exercises.	2.04	0.00	8.16	44.90	44.90	4.31	.80
BYOD fosters self-directed learning for improving English listening skills.	2.04	0.00	16.33	36.73	44.90	4.22	.87
Impact on Listening Skills Development (Overall)						4.08	.74

The impact of BYOD on English listening skills ($M = 4.08$, $SD = 0.74$) as shown in Table 4, was highly positive. The highest-rated statement was that BYOD allows students to learn at their own pace during listening exercises (44.90%, $M = 4.31$, $SD = 0.80$). This finding emphasizes the value of comprehensible input at an individualized pace for successful language acquisition (Chen, 2024). Additionally, BYOD was found to foster self-directed learning (44.90%, $M = 4.22$, $SD = 0.87$), reinforcing self-regulated learning where students take ownership of their learning strategies. The increased confidence in English usage after BYOD-based listening activities (26.53%, $M = 3.84$, $SD = 0.90$) further supports the effectiveness which states that reduced anxiety levels enhance language learning efficiency (Chen, 2024). The perceived improvement in students' ability to follow English audio materials (34.69%, $M = 4.08$, $SD = 0.89$) reflects findings from digital

listening skill development studies (Barjesteh & Isace, 2024). This suggests that interactive and multimodal engagement with English audio content improves comprehension.

To answer research question 3-regarding the role of teacher's experience and familiarity with BYOD play in its successful integration into EMI classrooms- the analyzed data are presented in Tables 5 through 10 and are explained as follows:

Table 5

General Perceptions toward BYOD as a Teaching Method in EMI Classes Across Teaching Experiences

Variable	Teaching experience (Years)						Test Statistics ab*		
	0-5 (n=27)		5-10 (n=36)		11+ (n=84)		Chi-Square	df	Asymp. Sig.
	Mean	S.D.	Mean	S.D.	Mean	S.D.			
I believe the BYOD teaching method is suitable for EMI classrooms.	3.89	.78	3.67	.78	4.00	1.02	1.496	2	.47
BYOD encourages active participation among students in EMI classes.	3.89	.78	4.25	.97	4.14	.89	1.772	2	.41
The use of BYOD enhances the engagement of students in learning activities.	3.78	.97	4.08	.79	4.14	.97	1.342	2	.51
BYOD helps to	3.78	.67	4.17	.83	4.11	.83	2.324	2	.31

address the diverse learning needs of students.									
Implementing BYOD in EMI classrooms requires additional technical support.	4.00	1.12	4.00	1.21	4.14	.97	.106	2	.95
General Perceptions of BYOD (Overall)	3.87	.71	4.03	.76	4.11	.82	1.170	2	.56

*a. Kruskal Wallis Test *b. Grouping Variable: Teaching experience

Table 5 displays the general perception of BYOD, which varied slightly among teachers with different levels of experience. Teachers with 11+ years of experience reported the highest mean score ($M = 4.11$, $SD = 0.82$), followed by those with 5-10 years ($M = 4.03$, $SD = 0.76$), and those with 0-5 years ($M = 3.87$, $SD = 0.71$). However, the differences were not statistically significant ($\chi^2 = 1.170$, $p = .56$). Experienced teachers (11+ years) were more likely to perceive BYOD as suitable for EMI classrooms ($M = 4.00$, $SD = 1.02$) compared to those with 5-10 years experiences ($M = 3.67$, $SD = 0.78$). This finding aligns with the TAM framework, which suggests that experienced users are more comfortable integrating technology due to higher perceived ease of use (Hoi & Mu, 2021). The belief that BYOD encourages active participation was strongest among teachers with 5-10 years of experience ($M = 4.25$, $SD = 0.97$). This may reflect their transitional position between traditional and technology-integrated approaches. Social constructivism supports this perspective, as digital tools enable collaborative learning, fostering student engagement (Su & Zou, 2022).

Table 6

Perceptions toward Device Preferences for BYOD Implementation in EMI Classes Across Teaching Experiences

Variable	Teaching experience (Years)						Test Statistics ab*		
	0-5 (n=27)		5-10 (n=36)		11+ (n=84)		Chi-Square	df	Asymp. Sig.
	Mean	S.D.	Mean	S.D.	Mean	S.D.			
Smartphones are the most effective device for implementing BYOD in EMI classrooms.	2.89	1.05	3.83	.83	3.89	1.07	6.085**	2	.05
Tablets are more suitable than laptops for enhancing students' listening skills.	3.56	.53	4.00	.74	3.68	1.06	1.573	2	.46
Students prefer their own devices for listening activities in EMI classrooms.	3.78	1.09	4.00	.95	3.71	.94	.824	2	.66
Device compatibility impacts the success of the	4.33	1.00	4.00	.74	4.14	.93	1.970	2	.37

BYOD teaching method.									
Teachers should have a say in the type of devices students use in EMI classes.	3.44	1.13	3.83	1.19	3.79	1.03	1.208	2	.55
Perceptio ns of Device Preferenc es (Overall)	3.60	.62	3.93	.59	3.84	.78	1.382	2	.50
*a. Kruskal Wallis Test *b. Grouping Variable: Teaching experience									
** = Statistically significant at the 0.05 level									

Teachers' device preferences, shown in Table 6 varied, with significant differences in perceptions of smartphone effectiveness ($\chi^2 = 6.085$, $p = .05$). Teachers with 5-10 years ($M = 3.83$, $SD = 0.83$) and 11+ years ($M = 3.89$, $SD = 1.07$) showed a stronger preference for smartphones than those with 0-5 years ($M = 2.89$, $SD = 1.05$). This suggests that more experienced teachers recognize the practicality of smartphones in EMI classrooms, aligning with mobile-assisted language learning research (Huang et al., 2024). Tablets were perceived as more suitable than laptops for enhancing listening skills, particularly by teachers with 5-10 years of experience ($M = 4.00$, $SD = 0.74$). This supports research on multimodal learning (Huang et al., 2024), which suggests that tablets offer interactive and visual support for language acquisition. Device compatibility was considered important across all experience levels, with the highest mean score by teachers with 0-5 years ($M = 4.33$, $SD = 1.00$). This indicates that less experienced teachers might face more technical challenges, reinforcing the need for institutional support.

Table 7

Perceptions toward the Impacts of BYOD on English Listening Skills in EMI Classes Across Teaching Experiences

Variable	Teaching experience (Years)						Test Statistics ab*		
	0-5 (n=27)		5-10 (n=36)		11+ (n=84)		Chi-Square	df	Asymp. Sig.
	Me an	S.D .	Me an	S.D. .	Me an	S.D .			
The BYOD teaching method improves students' English listening comprehension.	4.11	.93	4.00	1.04	3.89	.92	.363	2	.83
Using devices in class enhances students' ability to follow English audio materials.	4.33	.87	4.08	1.00	4.00	.86	1.191	2	.55
Students are more confident in using English after BYOD-based listening activities.	3.44	1.13	3.83	.94	3.96	.79	1.733	2	.42
BYOD allows students to learn at their own pace during listening exercises.	4.22	.67	4.42	.51	4.29	.94	.450	2	.80

BYOD fosters self-directed learning for improving English listening skills.	4.11	.78	4.33	.78	4.21	.96	.519	2	.77
Impact on Listening Skills Development (Overall)	4.04	.73	4.13	.72	4.07	.78	.086	2	.96

*a. Kruskal Wallis Test

*b. Grouping Variable: Teaching experience

In Table 7, teachers across all experience levels generally agreed regarding BYOD's positive impact on English listening skills ($M = 4.07$, $SD = 0.78$). The statement was that BYOD allows students to learn at their own pace, with teachers with 5-10 years' experience rating it the highest ($M = 4.42$, $SD = 0.51$). This aligns with Muñoz and Cadierno's (2021) study, which emphasizes the importance of individualized language exposure. Teachers with less experience (0-5 years) gave the highest rating to BYOD's role ($M = 4.11$, $SD = 0.93$), suggesting greater reliance of digital tools for student engagement. More experienced teachers (11+ years) were slightly less convinced by implementing BYOD ($M = 3.89$, $SD = 0.92$), possibly due to confidence in traditional methods. Self-directed learning was another key benefit, with teachers of 5-10 years ($M = 4.33$, $SD = 0.78$). This supports self-regulated learning theory, highlighting how digital tools empower students to take control of their learning.

Table 8

General Perceptions toward BYOD as a Teaching Method in EMI Classes Across Familiarity Levels

Variable	Familiarity with BYOD teaching methods						Test Statistics ab*		
	Not familiar (n=69)		Somewhat familiar (n=45)		Very familiar (n=33)		Chi- Square	df	Asymp. Sig.
	Mean	S.D.	Mean	S.D.	Mean	S.D.			
I believe the BYOD teaching method is suitable for EMI classrooms.	3.78	.80	3.87	.92	4.18	1.17	3.205	2	.20
BYOD encourages active participation among students in EMI classes.	4.09	.73	4.20	.86	4.09	1.22	.608	2	.74
The use of BYOD enhances the engagement of students in learning activities.	4.13	.76	4.13	.92	3.82	1.25	.395	2	.82
BYOD helps to address the diverse learning needs of students.	4.00	.67	4.13	.74	4.09	1.14	1.039	2	.59

Implementing BYOD in EMI classrooms requires additional technical support.	3.83	.98	4.27	.96	4.36	1.21	4.675	2	.10
General Perceptions of BYOD (Overall)	3.97	.63	4.12	.71	4.11	1.14	1.926	2	.38

*a. Kruskal Wallis Test

*b. Grouping Variable: Teaching experience

Table 8 shows the teachers' general perceptions of BYOD, which were positive, with the highest mean score among those moderately familiar with BYOD ($M = 4.12$, $SD = 0.71$), followed by highly familiar teachers ($M = 4.11$, $SD = 1.14$) and those unfamiliar with BYOD ($M = 3.97$, $SD = 0.63$). However, the differences were not statistically significant ($\chi^2 = 1.926$, $p = .38$). Teachers highly familiar with BYOD were more likely to perceive it as suitable for EMI classrooms ($M = 4.18$, $SD = 1.17$) compared to those with moderation ($M = 3.87$, $SD = 0.92$) and those unfamiliar ($M = 3.78$, $SD = 0.80$). This aligns with the TAM framework, which suggests that greater familiarity leads to higher perceived usefulness and ease of use (Muñoz & Cadierno, 2021). Teachers highly familiar with BYOD rated the need for additional technical support the highest ($M = 4.27$, $SD = 0.96$), followed closely by moderately familiar teachers ($M = 4.36$, $SD = 1.21$). This suggests that as familiarity with BYOD increases, awareness of technical challenges also grows, aligning with studies on digital readiness in education (Selwyn, 2016).

Table 9

Perceptions toward Device Preferences for BYOD Implementation in EMI Classes Across Familiarity Levels

Variable	Familiarity with BYOD teaching methods						Test Statistics ab*		
	Not familiar (n=69)		Somewhat familiar (n=45)		Very familiar (n=33)		Chi- Square	df	Asymp . Sig.
	Mean	S.D.	Mean	S.D.	Mean	S.D.			
Smartphones are the most effective device for implementing BYOD in EMI classrooms.	3.74	1.10	3.53	1.19	3.82	.87	.319	2	.85
Tablets are more suitable than laptops for enhancing students' listening skills.	3.96	.88	3.60	.83	3.45	1.04	2.460	2	.29
Students prefer their own devices for listening activities in EMI classrooms.	3.78	.90	3.93	.96	3.64	1.12	.696	2	.71
Device compatibility impacts the	4.17	.78	4.27	.59	3.91	1.38	.045	2	.98

success of the BYOD teaching method.									
Teachers should have a say in the type of devices students use in EMI classes.	3.96	.93	3.80	1.01	3.18	1.33	2.859	2	.24
Perceptio ns of Device Preferenc es (Overall)	3.92	.67	3.83	.62	3.60	.90	.770	2	.68

*a. Kruskal Wallis Test

*b. Grouping Variable: Teaching experience

Teachers' perceptions of device preferences in Table 9 showed variation but no significant differences across familiarity levels ($\chi^2 = 0.770$, $p = .68$). The belief that smartphones were most effective was strongest among highly familiar teachers ($M = 3.82$, $SD = 0.87$), supporting research on mobile-assisted language learning (Pan et al., 2024), which highlights the accessibility and convenience of mobile devices. Teachers unfamiliar with BYOD rated tablets as more suitable than laptops for listening skills ($M = 3.96$, $SD = 0.88$), while moderately ($M = 3.60$, $SD = 0.83$), and highly familiar teachers ($M = 3.45$, $SD = 1.04$) showed a lower preference for tablets. This suggests that less familiar teachers may perceive tablets as a more traditional digital tool, whereas experienced users recognize the advantages of diverse devices for different tasks. The perception that teachers should have a say in device selection was highest among unfamiliar teachers ($M = 3.96$, $SD = 0.93$), and lowest among highly familiar teachers ($M = 3.18$, $SD = 1.33$). This aligns with the digital literacy framework, which suggests that greater familiarity with technology leads to more flexible pedagogical approaches (Erstad, 2015).

Table 10

Perceptions toward the Impacts of BYOD on English Listening Skills in EMI Classes Across Familiarity Levels

Variable	Familiarity with BYOD teaching methods						Test Statistics ab*		
	Not familiar (n=69)		Somewhat familiar (n=45)		Very familiar (n=33)		Chi- Square	df	Asymp. Sig.
	Mean	S.D.	Mean	S.D.	Mean	S.D.			
The BYOD teaching method improves students' English listening comprehension.	4.13	.76	4.13	.83	3.36	1.21	4.045	2	.13
Using devices in class enhances students' ability to follow English audio materials.	4.26	.75	4.07	.80	3.73	1.19	1.622	2	.44
Students are more confident in using English after BYOD-based listening activities.	3.74	.96	3.87	.99	4.00	.63	.587	2	.75
BYOD allows students to learn at their own pace during	4.35	.57	4.47	.64	4.00	1.26	.871	2	.65

listening exercises.									
BYOD fosters self-directed learning for improving English listening skills.	4.17	.72	4.47	.74	4.00	1.26	1.763	2	.41
Impact on Listening Skills Development (Overall)	4.13	.61	4.20	.71	3.82	1.00	.929	2	.63

*a. Kruskal Wallis Test

*b. Grouping Variable: Teaching experience

Teachers' perceptions of BYOD's impact on listening skills shown in Table 10 were generally positive, with moderately familiar teachers rating it the highest ($M = 4.20$, $SD = 0.71$). Highly familiar teachers gave the lowest rating ($M = 3.82$, $SD = 1.00$), suggesting that greater familiarity may lead to more critical evaluations of its effectiveness. However, these differences were not statistically significant ($\chi^2 = 0.929$, $p = .63$). The strongest agreement was on BYOD allowing students to learn at their own pace, with moderately familiar teachers rating it the highest ($M = 4.47$, $SD = 0.64$). This supports Sakakibara and Yokokawa's (2015) study, which emphasizes the importance of self-paced exposure to comprehensible input. Self-directed learning was also highly rated, particularly by moderately familiar teachers ($M = 4.47$, $SD = 0.74$). This aligns with research on self-regulated learning, which highlights the role of autonomy in academic success.

To gain insights of BYOD implementing in EMI classrooms for enhancing students' English listening skills, data collected through online in-depth interviews with 49 English language teachers from diverse Asian countries, including Thailand, Malaysia, Vietnam, Indonesia, Taiwan, China, and the Philippines. These data were analyzed qualitatively, employing thematic and descriptive approaches to provide a more comprehensive understanding of the participants' viewpoints as follows:

Table 11*Codes and Key Insights of the Data Gained from the In-Depth Interview*

Codes	Key Insights
1. Necessity of BYOD	- Supports learning autonomy (e.g., pausing/replaying audio). - Essential for motivated and self-disciplined students.
2. Context-Specific Challenges	- Students in Asian countries tend to over-rely on devices, prioritize speed over understanding, or misuse for gaming/social media. - Differences in device specifications and affordability (e.g., older devices may not support activities).
3. Teacher's Role and Activity Design	- Teachers must guide device usage (when and how to use it). - Effective activity design should ensure compatibility across devices (mobile, tablets, laptops).
4. Distraction and Overdependence	- BYOD may distract students (e.g., social media notifications, gaming). - Over-reliance on devices can reduce critical thinking and teacher-student interaction.
5. Technical Issues	- Devices have varying operating systems, causing technical issues. - Screen size limitations (e.g., small phone screens can hinder participation).

Based on the codes, the responses were grouped into broader themes. A summary of these themes and descriptions in Table 11, with examples drawn from the data provided in Table 12.

Table 12*A Summary of the Themes and Descriptions*

Themes	Description	Examples from Data (Codes)
1. BYOD as a Tool for Learning Autonomy	BYOD helps students manage their own learning pace, improving confidence, especially in tasks like listening exercises. It encourages independence but depends on students' motivation and discipline.	"BYOD helps students gain confidence during listening exercises because they can pause and replay as needed."
2. Challenges in Asian Country Contexts	In Asian countries, cultural tendencies like rushing for correct answers, reliance on translation tools, or cheating may hinder effective BYOD use.	"In the Thai context, for example, students tend to cheat or be too eager to get the correct answer quickly."

3. Distractions and Overdependence on Devices	BYOD can lead to distractions (e.g., social media notifications) and overdependence on devices, which may undermine critical thinking and diminish the teacher's role.	"BYOD may divert students' attention to other channels like social media notifications." "Students tend to rely more on devices rather than teachers, taking teachers for granted."
4. The Importance of Teacher-Student Interaction	Teachers remain central in guiding students on how and when to use devices effectively and encouraging their active participation in learning.	"The teacher should know what device students can bring, when to use it, and how to use it." "Teacher-student communication still plays a crucial role in any classes regardless of what tools or devices they are using."
5. Design and Compatibility of Learning Activities	The success of BYOD depends on creating activities that work fluidly across different devices. Different devices (e.g., phones vs. laptops) have varying strengths depending on the task.	"Text on a phone may be too small, but some activities like using cameras work better on phones than computers."
6. Technical and Operational Challenges	BYOD implementation is often disrupted by technical issues such as compatibility problems, small screens, and device-specific limitations.	"There are always unexpected technical issues depending on the type of device and their operating systems."

To address research question 4-how BYOD fosters student autonomy and engagement in listening activities, and what barriers exist to its implementation-findings from the qualitative analysis in Tables 11 and 12 are discussed. The discussion can be divided into BYOD as a tool for learning autonomy and challenges in the Asian contexts.

BYOD as a Tool for Learning Autonomy

BYOD as a teaching method has the potential to enhance learning autonomy by enabling students to control their learning pace, access diverse resources, and engage with materials that suits their needs. Self-directed learning theory underscores the significance of self-directed learning, where learners take responsibility for their educational progress (Thomas, 2020). In EMI classrooms, BYOD facilitates learning by granting students the flexibility to interact with educational content in a manner that suits their learning styles. Participants emphasized the role of BYOD in building student confidence, particularly during listening exercises: "BYOD helps students gain confidence during listening exercises because they can pause and replay as needed." This aligns with Shafik's (2024) assertion that technological tools

empower learners to self-regulate their educational experiences. Moreover, BYOD enables students to bridge gaps in understanding by revisiting challenging content, which is particularly beneficial in EMI classrooms where language proficiency may vary. However, the effectiveness of BYOD in fostering autonomy is contingent upon students' self-discipline and motivation. As noted in the data, "If the students are motivated and self-disciplined, then a device is crucial for learning in a classroom." Without these qualities, the benefits of BYOD may be undermined, necessitating teacher intervention to scaffold autonomous behaviors and provide structured guidance.

Challenges in the Asian Contexts

The cultural and educational landscape in Asia poses unique challenges to the implementation of BYOD. In Thai classrooms, for instance, there is often a strong emphasis on achieving correct answers quickly, reflecting a surface-learning approach that prioritizes outcomes over processes. This behavior is influenced by cultural norms, as described by Alqarni's (2022) cultural dimension study, which suggests that collectivist societies such as those in Asian countries prioritize group harmony and tangible results over individual critical thinking. Participants noted, "Students tend to cheat or be too eager to get the correct answer quickly." This tendency can be exacerbated using personal devices, which provide easy access to online resources that offer immediate solutions. These behaviors undermine the principles of autonomous learning, which emphasize critical thinking and problem-solving. Teachers in EMI classrooms must design active activities that encourage deeper engagement with content. For instance, tasks that require students to justify their answers or engage in collaborative problem-solving can mitigate the reliance on quick solutions (Huang et al., 2024).

Research question 5 asks what strategies teachers recommend mitigating distractions and promote equitable access to technology in BYOD-enabled EMI classrooms can be discussed qualitatively based on the earlier coding and theming analysis. The discussion can be divided into the themes as follow:

Distractions and Overdependence on Devices

While BYOD offers opportunities for enhanced engagement, it also presents significant challenges, including distractions and overdependence on technology. The Technology Acceptance Model (TAM) highlights perceived usefulness and ease of use as critical factors influencing technology adoption. However, this factor of access provided by personal devices can lead to

unintended consequences, such as misuse and reduced focus. Participants expressed concerns about students being distracted by non-educational activities: "Students may divert attention to social media notifications or rely more on devices than on teachers." Such behaviors align with AlDakhil and AlFadda's (2022) critique of technology's unintended consequences, where tools designed to enhance learning may inadvertently impede cognitive development. Overdependence on devices can also diminish students' critical thinking skills, as noted in the data: "Students may not be able to think critically owing to overdependence." To address these challenges, teachers must establish clear guidelines for device usage and create a structured learning environment. For example, incorporating device-free discussions or setting specific timeframes for using technology during lessons can help maintain focus and balance.

The Importance of Teacher-Student Interaction

Despite growing reliance on technology, teacher-student interaction remains a cornerstone of effective education. The study of sociocultural theory underscores the importance of social interaction in learning, emphasizing that teachers play a critical role in guiding students. In EMI classrooms, where language barriers may exist, teacher guidance is particularly crucial (Liang et al., 2023). Participants highlighted the enduring significance of communication: "Teacher-student communication still plays a crucial role in any classes regardless of the tools or devices used." This perspective aligns with the view that technology should complement, rather than replace, traditional pedagogical practices. Teachers must provide clear instructions on "what devices students can bring to class, when to use it, and how to use it," ensuring that BYOD enhances the learning experience without diminishing the value of direct interaction.

Design and Compatibility of Learning Activities

The success of BYOD in EMI classrooms depends on the careful design of learning activities that are compatible with various devices. A study by Bicalho et al. (2023) provides a framework for integrating technology into education, emphasizing the need for transformation through modification and redefinition. Participants observed, "Text on a phone may be too small, but some activities like using cameras work better on phones than computers." This observation underscores the importance of aligning activities with the strengths and limitations of different devices. For example, activities that require extensive reading may be better suited to tablets or laptops, while tasks involving photography or audio recording may be more effective on smartphones. Teachers should evaluate the technical

requirements of their activities and ensure that they can be executed seamlessly across various platforms.

Technical and Operational Challenges

Technical issues often hinder the effective implementation of BYOD. Compatibility problems, software glitches, and device-specific limitations can disrupt the flow of classroom activities, as noted by participants: "There are always unexpected technical issues depending on the type of device and their operating systems." The TAM framework emphasizes the importance of perceived ease of use in technology adoption (Rashid et al., 2019). To minimize technical disruptions, teachers should provide technical support and ensure that learning materials are optimized for a variety of devices. For instance, using responsive web design can help address screen size limitations, while pre-testing activities on multiple devices can help identify potential issues.

Conclusion and Implications

Implementing BYOD (Bring Your Own Device) in Asian EMI (English as a Medium of Instruction) classrooms offers significant potential for enhancing student engagement and language skills but also presents notable challenges. Cultural factors, such as the emphasis on quick, correct answers can undermine deeper learning and promote surface-level approaches, especially with easy access to online resources (Shafik, 2024). This tendency risks fostering academic dishonesty and reducing critical thinking (Chang et al., 2022). Moreover, BYOD can lead to distractions and overdependence on devices, which highlights that ease of use can lead to misuse of distractions (Che & Sailin, 2022). Structured guidelines-such as designated device usage times and device-free discussions, are essential to mitigate this. Teacher-student interaction remains a cornerstone of effective education, and Vygotsky's sociocultural theory stresses the importance of guided learning, particularly in EMI contexts where language barriers exist (Liang et al., 2023). Ensuring that technology complements rather than replaces direct interaction is crucial. Inclusivity is another challenge, as disparities in device quality and affordability can hinder equitable learning experiences. Adaptable, device-neutral activities are suggested, along with school-based technology lending programs to support students from diverse socioeconomic backgrounds (Alqarni, 2022). Technical issues, such as compatibility problems and software glitches, can disrupt lessons, necessitating pre-tested activities and robust technical support. While BYOD fosters innovation and autonomy in learning, effective implementation requires comprehensive teacher training, particularly for those less familiar

with digital tools, as well as strategic policymaking to address technical support and standardize device use. Balancing BYOD's benefits with potential drawbacks-distractions, inequities, and overreliance-will ensure it contributes positively to pedagogical outcomes.

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