ENGLISH MEDIUM INSTRUCTION IN ASIA: A REVIEW OF TEACHERS' PROFESSIONAL DEVELOPMENT

By

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A thesis submitted to the Department of Brac Institute of Languages in
partial fulfillment of the requirements for the degree of
Master of Arts in TESOL

Brac Institute of Languages
Brac University
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It is hereby declared that

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2. The thesis does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.

3. The thesis does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.

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Abstract

Higher Education Institutions (HEI) in the Asia Pacific region have noticed a widespread adoption of English Medium Instruction (EMI). However, the nature of EMI policy directives, code-switching to mother tongue in the classrooms, a lack of professional development programs, the use of local materials, the teachers' insufficient instruction, nationalism, and the nature of EMI policy directives have made it more difficult for STEM teachers to become prepared as EMI teachers. The current study aims to investigate the level of STEM teachers' professional development preparedness in EMI courses. Conducting a systematic review of the research that has been published on the EMI phenomena in Asian universities, and discussing the results in light of reflective practices a process that facilitates teaching, learning, and understanding, and it plays a central role in teachers' professional development (Mathew et al., 2017). Also, May Britt Postholms' suggestion of using metacognitive processes and learning explicitly for lecturers' professional growth (2012). The implications of this study will assist the stakeholders in rethinking bilingual higher education, where English and the national language will predominate to facilitate the acquisition of information. Furthermore, because teachers' preparation for professional development in connection with EMI has been relatively underexplored, the study laid the groundwork for future researchers to take into account such a topic for empirical examination.

Keywords: English Medium Instruction, higher education institutions, STEM teacher preparation, professional development

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Chapter 1 Introduction

1.1 Background of the study

The perceived value of the English language entails its power to uphold the status of individuals who have good command over this language (Karim et al., 2021a). The legacy of British colonialism enhances and expands English language teaching and learning in Asian countries (Rahman et al., 2018). Eventually, English has got the status of the medium of instruction in higher education institutes (HEIs), which is a common phenomenon seen in countries where English is a second or foreign language, with the intention to internationalize higher education and produce graduates who will be active participants in the global market (Macaro et al., 2018; Karim et al., 2021b; Karim et al., 2022; Rahman et al., 2022; Rahman et al., 2020; Sarkar et al., 2021). The HEIs consider EMI provision as a catalyst that would serve to receive grants and funding, maintain an upward trend in the global ranking, establish an international partnership, open an avenue for collaborative degree programs and publish in international journals, and promote international staffs and students exchange (Galloway & Ruegg, 2020). Considering the opulent number of benefits, the Language Policy and Planning (LPP) in many Asian countries observed revisions to fulfill the prerequisites to gain the advantages offered by EMI. The teaching and learning of academic subjects in English in a state where English is not the prior language are known as English Medium Instructions (EMI). It allows students to gather knowledge about their subject and also helps to enhance language skills. EMI is considered a more sensitive issue because some believe that it is a threat to the domestic sphere (Po-yung & Hang-yue, 2014), some other scholars think that it is necessary to keep up with the competitiveness of the world (Coleman 2006;

Wilkinson, 2013). Countries, where English is not the native language, face many challenges to learn subjects that are being taught in English. Especially, for teaching academic subjects like Medical Science, Technology, Engineering, and Mathematics (STEM) the prelude of EMI is undergoing around the universities in the world. The large-scale adoption of EMI has developed the necessity for teachers' professional development and taken measures to draw up university STEM teachers to deliver their content in English whose native language is not English (Macaro et al., 2018). For a proper way of communication, the use of EMI increases the amount of exposure and opportunities. At present, everyone recognizes the importance of learning the English Language. But both teachers and students are facing problems in learning content through English causing an increased amount of anxiety in students (Cho, 2012), to an extent of pedagogical activities (Vinke, 1995). A good quantity of universities has been startling in the Asia-pacific region that is approaching courses and programs through English as a medium of instruction. The ongoing flow of reconciling English Medium Instruction (EMI) exemplified as the transport of teaching and learning, has become an important issue in language policy and planning throughout the globe. As a result of globalization, internalization, and competence (British Council, 2014) English became the lingua franca and made it essential to execute EMI in worldwide universities. The effects of globalization and internationalization in addition to 'the development of a competitive market in higher education have led to the growth of EMI expansion (Doiz et al., 2013; Suviniity, 2012; Ament & Vidal, 2015).

Even though EMI is a global phenomenon, the target of this study is Asia. There are many reasons that the Asia Pacific has become fully ready for discourse in EMI. One main factor is MOI (Medium of Instruction). English is now the most accepted medium of communication for the economy, business, trade, and most importantly teaching. For an advanced international profile,

Asian Universities have obtained that they need to administer EMI courses (Kirkpatrick, 2014). However, Asia has enacted bilateral agreements with British, American, and Australian universities to introduce EMI programs in numerous disciplines. To earn a huge amount of investment, these western countries built their campuses using EMI in Asian countries like Bangladesh, Malaysia, China, Vietnam, Japan, and so on (van der Walt, 2013). This is how the influence of EMI has spread in Asia.

In Bangladesh, because of the strong nationalist sentiment enacted in the mother tongue - Bangla Hamid et al. (2013a); Hamid et al. (2013b), the Private University Act 1992 contains no clear directives subject to the Medium of Instruction (MOI) – whether EMI should be instituted or BMI (Bangla Medium Instruction) should be in place – the Private University Act 1992 contains no clear directives subject to the Medium of Instruction (MOI) Rahman et al. (2020). Next Malaysia, which is one of the primal Asian countries to use EMI in their private universities and generate higher educational scope for their citizens (Gill, 2004). Then again, their public universities, despite introducing EMI policies, never emphasize implementing them, especially in subjects like science and mathematics. As per the opinion of their lecturers, they demanded an acceptable language policy (Ali, 2013). Another South Asian largest country is Myanmar, where the MOI is their native language and English is used for technical subjects in some of the grades at the primary level. One of the reasons is the scarcity of teachers who would deliver lectures in English (Drinan, 2013). At their tertiary level, students are learning content without understanding its meanings from teachers who are not proficient in using the English language. Then in a case study of Vietnam, deterioration has been noticed in education. This is because of focusing less on using English as a foreign language and also unsatisfactory attention to the English-speaking aspect both by learners and teachers whose first language is not English (De Wit, 2011). Another

issue that came out of EMI implementation in Vietnam is that students receive little help from their teachers, though their language competence improved undoubtedly (Byun et al., 2011).

1.2 Problem Statement

To make the overall education process more effective, it is important to approach EMI classes a little differently by teachers. But in most countries of Asia, a little number of studies have been done regarding the effective EMI course delivery and professional development in higher education. Additional research is required into the causes underlying the implementation of EMI, best practices for delivery, and the implications for teaching, learning, and teacher's professional development (Dearden, 2014). In many circumstances, there is an inadequacy of teachers to sufficient language competence (Dearden 2014; Hamid et al. 2013; Vu and Burns 2014). Added to this, there is a lack of clear guidelines for faculty on how to deliver education through the medium of English (Dearden, 2014). It has been recommended that the outset of language is required for teachers to participate proficiently in EMI (Klaassen & De Graaff, 2001), to elevate the allied issue of whether teaching staff too should be required to have a minimum level of English to deliver EMI, and, if so, how that could be discovered. In this regard, the professional development of EMI teachers needs to be taken into consideration. Research stipulates that the input from content teaching does not essentially correspond to language proficiency development (Hamid et al., 2013; Wilkinson, 2013). Students may suffer during the content-learning process if they do not have enough academic language competence (Hamid et al., 2013).

1.3 Aim of the study

The study aims at exploring the state of preparedness for the professional development of STEM teachers and the kinds of competencies that might be required to teach EMI efficiently in the HEIs of Asia.

1.4 Objective of the Study

The objective of the study is to carry out a systematic review to find the state of preparedness for professional development of STEM teachers in EMI in HEI, highlighting the challenges STEM teachers face.

1.5 Research Question

The current study has been guided by the following research question:

1. How do STEM teachers prepare professionally for EMI classes?

1.6 The rationale of the study

There are many periodicals, articles, and research papers on EMI. The importance of EMI implementation in the classroom has been emphasized by several researchers. Some have emphasized teacher assessment's importance in understanding teachers' need to improvise. The extent to which lecturers who do not speak English as their first language are and should be assessed to teach in English has been the subject of some research (Hultgren et al., 2022). However, little research has been undertaken on the issues faced by STEM teachers in Asian higher education institutions. In many case studies of Asian HEIs, STEM teachers claim themselves as EMI teachers but not an ELT teacher. That is why I felt it was necessary to undertake a study in the first place, highlighting the key instructional problems that STEM teachers encounter while implementing

EMI in the classroom. Alongside this, I would overview the preparation STEM teachers receive in EMI for their professional development.

1.7 Significance of the study

This study contemplates documenting pieces of evidence about the state of preparedness of STEM teachers in higher educational institutions. The findings of the current study would help the local contributors to learn about the teachers' reflection on the favors of EMI and their rapport in affiliation with their preparations and practices for EMI in the classrooms. Alongside this, a new pathway would be created for global and local contributors to undergo essential steps for rethinking or revising.

1.8 Limitations of the study

Previously, EMI was used at primary and secondary levels as a medium of communication. But in the last two decades, there has been a huge change in the process and EMI has now become popular in Asia's higher educational institutions (Mitchell, 2016). However, there is an often-increased gap between students' existing and required study skills. Alongside this, the lack of research on the professional identity implications of EMI limits what kind of support can be offered to the lecturers for their professional development (Pappa & Moate, 2021).

As this study is taking place during the worldwide pandemic situation, the method of the study will experience a systematic review to review studies that support my area of concentration. EMI is a vast field and when it comes to questions about teachers' professional development many other aspects come in connection. The paper reflects on many other aspects but since this paper covers the area of STEM teacher's preparation, challenges faced and EMI implementation remarks

only and also has word limitations of ten thousand, it's not possible to include the other possible discussions that this paper ponders over.

1.9 Definition of terms

EMI: English as a medium of instruction, or EMI, refers to the teaching and learning of content or academic disciplines in the English language (Ducker, 2019).

STEM teachers: STEM teachers teach subjects in the field of Science, Technology, Engineering, and Mathematics, and the many variations within these areas.

PD: Professional development refers to the continual learning opportunities provided by educational institutions and districts to teachers and other education workers (Rebora, 2004).

HEI: Higher Education Institutions are a tertiary level of education that is provided by universities, which is at the top of the education pyramid.

LP: Language proficiency is a magical concept that governs young minds' ability to use a language precisely enough for better living, studying abroad, learning new cultures, and establishing trade partnerships (Vency & Ramganesh, 2013).

<center>**Chapter 2 Literature Review**</center>

In this study, I have tried to shed light on the challenges of STEM teachers while they prepare for their professional development in EMI courses related to their academic environment, the challenge of implementation, the unfamiliarity of teachers with EMI-focused learning, and the challenges while preparing. Before moving forward to further discussion, it is very essential to have in-depth knowledge about the orientation of EMI, policies, and practices in Asia.

2.1 Orientation of EMI in Asia

English is currently the language of instruction at many educational institutions (EMI). According to Dearden (2015), the use of EMI in higher education (HE) outside of the anglophone world is a rapidly expanding global phenomenon. EMI has been influenced by a variety of variables, including those related to education, politics, and economics (Evans and Morrison, 2016). Perhaps EMI's expansion can be attributed to the fact that English has become an internationally recognized language, which has increased student mobility across nations and necessitated the development of EMI (Karim et al. 2018). The success of EMI in Asian countries demonstrates the value that many non-English-speaking Asian societies place on English proficiency.

One of the biggest strengths of implementing EMI in Asia is that it makes the lecturers aware of the importance of learning and teaching the English Language. They are processing them into various workshops, courses, and events that would help them to elevate their skills for overcoming the challenges of EMI. The importance of English in higher education is expanding at the same time. Around 150 private universities in Bangladesh have designated themselves EMI

universities in order to embrace HE and provide students with English language skills so that they may identify as global citizens (Karim et al., 2021). Arguably in the case of the Philippines, it has been found that in their higher education, there was the removal of Filipino as a language of education and scholarship. This is because code-mixing and switching is a ubiquitous reality throughout the whole of Philippine higher education and English is unchallenged as the formal language of instruction (Tupas, 2007). Coming to Japan, they wanted the world to learn what it means to be Japanese (Kirkpatrick, 2014) and embrace EMI by offering 30 global projects to attract international students which resulted in a failure as a smaller number of students enrolled than the number expected. This incident raises criticism of the fact that EMI is for international students only and local students were excluded (McKinley, 2015). Again, in Mainland China, the introduction of the EMI program at the tertiary level happened at the eleventh hour compared to the other Asian countries. Then it is found that the condition of EMI teachers was weak to deliver learning in English and this prevented them from improving and interacting. Implementation of the EMI program in China's higher education came up with several challenges, especially for the teachers that required adapting pedagogy for a successful learning environment (Hu et al., 2014).

2.1.1 EMI policies in Asia

Relevantly, the macro imperatives of globalization, such as national participation in the global economy, have received a great deal of attention in language policy and planning (LPP), particularly in language-in-education planning in nations like China, Japan, Malaysia, South Korea, Thailand, and Vietnam, which have been attempting to participate in the global market through the use of English (Ali & Hamid, 2018; Galloway & Ruegg, 2020; Kim & Tatar, 2018; Rose & Mckinley, 2018). EMI occupies a significant place in the LPP of these countries.

Vietnamese higher education institutions (HEIs) are aligned with other Asian institutions that are implementing EMI programs or courses, allowing foreign students to study in Vietnam and vice versa and raising the profile of institutions as bilingual and globally-focused (Dearden, 2014). The university in Malaysia lacks a clear language policy with reference to EMI. It is also evident that no employees or students were consulted during the development of any policy (Ali, 2013). An extreme example of an EMI policy being implemented top-down without consideration for the actual reality on the ground is presented by the current language policy in Myanmar, which requires that EMI be used in all HEIs.

The goal of the Hong Kong government is for its residents to be bilingual in Cantonese, Putonghua, and English (in Chinese and English). The fact that six of the eight government-funded colleges offer English as a second language undercuts this admirable goal.

Naturally, this has caused parents to demand EMI in secondary schools, which has led to an increase in the number of content lessons taught in English and a drop in the number of content classes taught in Chinese. Therefore, Hong Kong serves as an example of how meso-level university language rules can undercut a top-down macro-level policy that promotes a trilingual and biliterate citizenry (Kirkpatrick, 2014).

2.1.2 EMI practices in Asia

Therefore, EMI offers a number of opportunities for the young generation in terms of career prospects. This has been conditioned by the fact that many countries employ English as the language of broadcasting, science, education, business, and arts. Still, there are few countries that, despite using English in some regions, are rather firm about keeping their culture and language identity. English might be used outside of the classroom for on- or off-campus interactions as well

as inside the classroom. At the classroom level, the extent of use might vary from English being simply the language of the textbook, the medium of delivery, the language of assessed activities, the language of classroom activities, or the language of all classroom interactions (Lei & Hu, 2014). Some HEIs have instructors who have created repertoires honed inside the culturally, historically, and socially formed contexts of HEIs even before they begin teaching EMI. HEI teachers who are inexperienced, on the other hand, may see it as an opportunity for professional development (Dafouz, 2018). With the major shift in the availability of their teaching resources, EMI enhances the obligations of educators of all backgrounds. Here are two recent events that are driving a Bologna-style approach to ensure degree programs converge. The first is that at its 2012 summit, the Asian Pacific Economic Cooperation (APEC) group of countries committed to looking into methods to improve staff and student mobility across the region's universities. The second is that the ASEAN Universities Network, which includes about 30 universities in ASEAN countries, is attempting to promote staff and student mobility among the network's universities (Kirkpatrick, 2017). Since 2006, E-University has offered offshore JPs and franchise APs, as well as locally designed HQPs, and now offers two offshore and franchising programs and four local English medium programs under this scope. Taiwan, like many other Asian countries, has actively promoted EMI as part of its effort to internationalize its higher education sector. As lecturers adjust their lectures to the new medium of instruction, the rush to deploy EMI quickly creates a demand for teacher assistance. This circumstance creates an opportunity for Anglophone countries to conduct completely immersive EMI teacher training (Fenton-Smith et al, 2017).

2.2 Theoretical Framework

The reflective teaching practices proposed by (Mathew et al., 2017) and metacognitive processes and learning specifically for the professional development of lecturers suggested by (Postholm, 2012) laid the theoretical foundation of this study. The purpose of this study was to better understand the level of STEM teachers' preparedness for professional development in teaching EMI courses. The argument was to approach EMI classes a little differently by the teachers. Teaching is a complex job, thus in order to enhance and improve student performance, teachers must reflect on their methods for professional growth. Reflective practice is vital in a practice-based professional learning setting where teachers learn from their own professional experiences. It is a process of continuous learning (Mathew et al., 2017). Another framework suggested by (Postholm, 2012) is metacognitive processes and learning specifically for the professional development of lecturers. They interact and construct knowledge to learn with the students during an activity in the classroom. When teachers develop a metacognitive attitude (Jackson, 1974), they are aware of their own practice. Based on these theoretical foundations, the current study investigates the type of preparation university STEM teachers received for their professional development in EMI. The current study's main focus is on learning about the preparations and challenges of EMI teachers for their professional development, which is in line with contemporary developments in higher education internationalization.

2.2.1 The role of reflective teaching in teacher education

Reflective teaching is a significant part of the student teachers' initial training program. Many academics have mainly acknowledged it as a tactic that could aid in instructors' professional development and improve the caliber of instruction (Mathew et al., 2017). According to (Jacobs

et al. 2011), reflective teaching gives teachers the chance to update their methods and comprehend the results of their instruction. They added that reflective teaching offers details on the meaningful connections teachers make with students, supporting good teaching and learning practices. According to (Akbari, 2007), reflective teaching will force educators to reevaluate the stereotypes they picked up during their early stages and will help them create more effective practices. Teachers will blend the knowledge they received in pre-service training with their practical experiences to make educated decisions based on the circumstances they face.

It's important for aspiring teachers to analyze their methods and consider all of their options. According to (Yang, 2009), most teachers do not naturally engage in critical reflection, hence student teachers should be given suitable opportunities to do so. This shows that reflectivity is a skill that must be learned and not just naturally occur. To create a classroom environment where the teacher may connect teaching theory to teaching practice, teacher educators should put this theory into practice in the classroom. They should then examine the results and reflect on them. By implementing reflective teaching strategies, the teacher educator inspires aspiring teachers and encourages them to put those strategies into practice during their teaching practice sessions (Mathew et al., 2017).

A number of research has been conducted on reflective teaching as an essential part of teachers' professional development, (Griffiths 2000; Akbari 2007; Killrn 2007; Conley et al., 2010; Jacobs 2011; Mathew et al., 2017). The strategies that help to accelerate the reflective practice are reflective journals, collaborative learning, recording lessons, teacher educators' feedback, peer observation, students' feedback, and action research.

2.2.2 Metacognitive process and learning

A component of self-regulated learning is metacognition. In our context, it refers to educators learning themselves. (Dewey, 1916) held the view that persons who regularly engage in learning circumstances also acquire new things. Metacognition serves as the basis for both metacognitive knowledge and metacognitive techniques (Flavell 1979, 1987). Cognitive methods are less common than metacognitive strategies at greater levels of reflection. The purpose of using metacognitive methods is to evaluate how the goals are to be or have been satisfied, not to achieve any particular goals. Metacognitive techniques provide knowledge about knowledge, or cognition about connectivity. By employing metacognitive techniques learners can plan, lead, regulate and control their own learning (Flavell, 1976). In addition, metacognitive information plays a vital role in knowing which techniques can be applied in various contexts, as well as in directing one's own learning processes by applying metacognitive methods.

Metacognitive information is broken down into three categories by Flavell (1979, 1987): knowledge about a person, knowledge about tasks, and knowledge about techniques. Understanding oneself as a person who is constantly learning and thinking is known as knowledge about a person. Knowing about tasks implies being aware of the many cognitive tasks and how they call for distinct approaches. Knowledge of strategies encompasses the learner's familiarity with numerous approaches that could be used to finish a task. This refers to the way a teacher cultivates a metacognitive attitude in the classroom (Jackson, 1974). This application refers to observing the students and how teaching actions are tailored to each individual during the teacher-pupil interaction. Therefore, in order to promote learning and deal with both expected and unexpected input, it is essential to take a meta-perspective of the interaction processes in the classroom. It also entails using action learning to learn from events that occur in the classroom

(Postholm, 2012) so that the teaching can be adjusted and improved on a continuous basis. It also entails understanding how to apply metacognitive techniques and how one learns from these acts. This is what (Dearden, 1976) referred to as first- and second-order learning. First-order learning entails content learning. Understanding how information is learned is referred to as second-order learning.

The cognitive paradigm is where metacognition began (Flavell 1979, 1987). Teachers who adopt a metacognitive attitude are conscious of their own practice (Jackson, 1974). During classroom activities, teachers engage in conversation with their students and jointly build knowledge. Thus, within a constructivist frame of reference, metacognition and the emergence of a metacognitive attitude are significant elements linked to learning.

Chapter 3 Method of study

3.1 Planning the review

According to (Matthew et al. 2017) and (Postholm, 2012), the main elements of reflective teaching practices, metacognitive processes, and learning specifically for teachers' professional development are linked to the practices of teachers in order to understand the level of preparedness for their professional development. The author must look at the studies that highlighted the classroom practices of EMI teachers in the Asia Pacific Region, the difficulties they encountered, and the solutions they came up with in order to solve the problems in order to determine the relevance of these theories to the research question, "How do STEM teachers prepare professionally for EMI classes?" The author attempted to understand the level of EMI teachers' preparedness for professional development in Asia after conducting a review of the literature and analyzing the data in light of the reflective teaching practices recommended by (Mathew et al. 2017) and metacognitive process and learning specifically for teachers' professional development. The research conducted by (Karim et al. 2022), (Macaro & Hane, 2019), and (Fenton-Smith, 2017) was deemed to be strategically important. Additionally, a systematic review of the pertinent literature influenced the data for the current study because, according to (Kitchenham, 2004), such a review enables researchers to assess and understand all pertinent material for a given study.

3.2 Development of a review protocol

The researcher prioritized extracting a large portion of the data from studies indexed in SCOPUS, ERIC, ResearchGate, and Academia. Books from well-known publications have been considered. However, any report published by an organization that was perceived as authentic by

the author was also taken into account. The relevant pieces of literature were planned to be searched based on EMI classroom practices of teachers, challenges EMI teachers face, and teachers' overcoming strategies for professional development. The inclusion criteria concerned the studies published in the last ten years. The researcher assumed that this time span would capture a clear picture of teachers' different EMI classroom practices and their preparation for professional development in the Asia region. The keywords used in the searches were: EMI classroom practices in Asia, EMI teacher's professional development in Asia, theoretical frameworks for EMI teachers' professional development, and implementation of EMI in Asian Universities. The author only focused on papers that are EMI teacher-centered. EMI student-focused papers were excluded. Then again EMI in primary or secondary levels has not been considered. EMI teachers of the tertiary level have been taken for review. Also, EMI in Europe or other regions except for the Asia Pacific region were excluded for the sake of the limitations of this study.

Google Scholar was used as a search engine due to its academic structure. It encompasses more scientific and scholarly literature than Web of Science (WoS) and SCOPUS as these are more selective in terms of which journals are included in their databases (Orduna-Malea et al., 2015). Moreover, Google Scholar has expanded its coverage over time, making it a powerful database for this kind of research. (Halevi et al., 2017).

3.3 Conducting the Review

Asia Pacific is a vast region. It was not possible to review all the universities in Asian countries. Considering the time span of ten years and the focus of the current study the following countries have been selected. Among them, the studies of the countries Vietnam, Korea, Pakistan, Japan, Singapore, Cambodia, Taiwan, and Indonesia are book chapters that have been reviewed

because of the content and number of citations available. However, for countries like Bangladesh and China journal articles have been taken into consideration that offered a detailed overview of EMI teachers' professional development and preparedness. I have selected the studies that shed light on EMI language, pedagogy and policy issues, challenges of EMI teachers, exploring lecturers' needs for their professional development, lecturers' perceptions of the assessment procedure, and competencies. Given below is a table that demonstrates the studies we selected, along with the rationale of the selection. Building on the theoretical perspectives suggested by (Matthew et al. 2017) and (Postholm, 2012), the current study has extracted and reported the data from the studies included in Table 1.

Country	The study	Focus of the study	Sources
Vietnam	Walkinshaw et al. (2017)	Language, Pedagogy, and Policy Issues	Book Chapter, Publisher- Springer International Publishing AG 2017
Korea	Kim (2017)	Challenges and Future Directions	Book Chapter, Publisher- Springer International Publishing AG 2017
Pakistan	Raza et al. (2022)	English Language Teaching	Book, Publisher- Springer Nature Singapore Pte Ltd. 2022
Japan	Hino (2017)	The Significance of EMI	Book Chapter, Publisher-

		for the Learning of EIL in Higher Education	Springer International Publishing AG 2017
Singapore	Bolton and Botha (2017)	English as a Medium of Instruction in Higher Education	Book Chapter, Publisher- Springer International Publishing AG 2017
Cambodia	H. Moore (2017)	A Case Study of Assessment in English Medium Instruction	Book Chapter, Publisher- Springer International Publishing AG 2017
Taiwanese	Fenton-Smith et al. (2017)	Professional Development for EMI: Exploring Lecturers' Needs	Book Chapter, Publisher- Springer International Publishing AG 2017
Banglades h	Karim et al. (2021)	A Phenomenological Study of the Language Ideology, Language Management, and Language Practice in English-Medium Universities: Lecturers' and Students' Voices	Journal- The Qualitative Report Volume 26, Number 4, Article 13

China	Macaro & Hane (2019)	Teachers' perspectives of competencies, certification, and professional development	Journal- Journal of Multilingual and Cultural Development Volume 41, Number 3, 219-231
Indonesia	Dewi (2017)	A Study of Lecturers' Perceptions	Book Chapter, Publisher- Springer International Publishing AG 2017

Table 1: The relevant studies reviewed in this study.

3.4 Reporting the review

In the proposed theory of (Mathew et al., 2017) the importance of reflective teaching practices has been presented. Reflective teaching practices are vital in a practice-based professional learning setting where teachers learn from their own professional experiences. The strategies that help to accelerate the reflective practice are reflective journals, collaborative learning, recording lessons, teacher educators' feedback, peer observation, students' feedback, and action research. Next (Postholm, 2012) suggested the theory of metacognitive process and learning that accelerate teachers to plan, lead, regulate, and control their own learning. In addition, metacognitive information plays a vital role in knowing which techniques can be applied in various contexts, as well as in directing one's own learning processes by applying metacognitive methods. For instance, difficulties with language proficiency, a lack of professional development resources, and difficulties with EMI teachers' professional growth have all been noted in research.

According to the ideas of (Mathew et al. 2017) and (Postholm, 2012), EMI teachers may be able to overcome the difficulties presented in EMI classrooms and advance their professional growth by implementing reflective teaching methods and metacognitive processes and learning. Last but not least, I tend to place the case under the issue of EMI in Asia and instructors' problems for professional development, in keeping with the theoretical component and using the type of results obtained in past studies.

Chapter 4 Findings

The current study focused on the preparedness of Professional Development of STEM teachers in HEIs and the challenges associated with it in the Asia Pacific region. To collect evidence from the selected studies in an organized way I prepared a table. It contained the name of the authors and their published dates, contexts supporting my area of concentration, classroom practice of EMI, challenges of EMI teachers, and their overcoming strategies. The following Table 2 helped me to organize the findings in a systematic way:

Studies	Context	Classroom practice of EMI	Challenges	Overcoming Strategies
Huong Thu Nguyen, Ian Walkinshaw, and Hiep Hoa Pham 2017	EMI Programs in a Vietnamese University: Language, Pedagogy, and Policy Issues	Code-switching between Vietnamese and English language in the classroom.	Teachers with high proficiency failed to match with students' understanding level and teachers with low or average ability created space for confusion and	Additional EMI resource for enrolled students. Academic language and learning skills courses are tailored to specific disciplines rather

			lack of attention. Students at E-University were unimpressed with the English language support available to them	than generic English for Academic Purposes offerings. Workshops, and seminars on EMI-related pedagogical approaches.
Eun Gyong Kim 2017	English Medium Instruction in Korean Higher Education: Challenges and Future Directions	different linguistic approaches	Korean universities' implementation of EMI has been highly controversial, and an assortment of issues has been raised but not yet settled.	Universities have taken various measures to facilitate the expansion of EMI Classes, For the purpose of expanding EMI, universities are hiring scholars who are

				capable of teaching in English and requiring students to take EMI classes. The Establishment of an Adequate Classroom Environment
Raza et al. 2022	English Language Teaching in Pakistan		The worldwide pandemic affects the growth of CPD (Continuous Professional Development) Less research on subject-specific teacher	Active learning and reflection, continuous PD, and peer collaboration. Self-development and self-care for teachers. Reforming the

			education	hiring policy
Nobuyuki Hino March 2017	The Significance of EMI for the Learning of EIL in Higher Education: Four Cases from Japan	use of small-group discussions, teaching through real-life experience, learning through authentic interactions	The size of the set data is small. In most cases, classes in language and culture are taught by professionals in language education creates a gap for other areas of discipline, and is yet to be investigated. Teachers' lack of proficiency in English	EMI in higher education of Japan can be significant for the concurrent learning of content and EIL (which the author terms CELFIL: Content and English as a Lingua Franca Integrated Learning), Content-Based Approach as a practical approach to teaching EIL.
Kingsley Bolton	English as a	Formal registers	Although	Needs to

and Werner Botha March 2017	Medium of Instruction in Singapore Higher Education	of English in the classroom	English is the sole official language of higher education and public education generally, it Singapore, the bilingual government policy has contributed to a complex patterning of multilingual language use in relation to the four languages.	consider the wider multilingual ecology of the Singapore society, and the often-complex multilingual worlds of Singaporean university students. Code mixing and code-switching
Stephen H. Moore March 2017	A Case Study of Assessment in English	Blend of content. CLIL learning and Content-	many students lack the motivation to	Fairness, Adequacy and Sufficiency of

			work continuously across the semester. Teachers work without systematic moderation practices. assessment and testing are often wrongly perceived by many lecturers as 'unpaid' work.	Testing Regime, Assessment for Learning
	Medium Instruction in Cambodia	based teaching (CBT)		
Ben Fenton-Smith, Christopher Stillwell, and Roger Dupuy March 2017	Professional Development for EMI: Exploring Taiwanese Lecturers' Needs	Mixed classes	Difficulty in meeting students' expectation, teachers lack confidence in their ability to	Increase teacher training opportunities to moderate classroom discourse,

			teach. lecturers experience difficulties communicating content in English due to the low proficiency levels of Taiwanese learners (Huang 2015).	accuracy (explaining concepts clearly), and flexibility (communicating in different ways and on different levels).
John Paul Shimanto Sarkar, Abdul Karim, Muhammad Kamarul Kabilan, and Shahin Sultana April 2021	A Phenomenological Study of the Language Ideology, Language Management, and Language	Code-switching phenomenon between the native language and English	In presence of observers, lectures use only English but in a normal class, they use both Bangla and English. As a	private universities should strengthen teacher education programs for the lecturers of the

| | Practice in English-Medium Universities in Bangladesh: Lecturers' and Students' Voices | | result, the students struggle. | discipline contents. To claim a fresh graduate needs training and adequate support to empower himself or herself for imparting knowledge. Not only EMI but also other pedagogical factors are prevailing, which should be properly notified to the novice lecturers. |
| Ernesto Macaro & Shuangmiao | English medium instruction in | Dual language | No consensus on what kind of | Programs of PD, therefore, need |

Hane April 2019	China's higher education: teachers' perspectives of competencies, certification, and professional development		status an EMI certification should have, or who should be the awarding body. Lack of clear requirements and incentives.	to take into account a number of dimensions relating to competencies, as were identified in the study. Administrative power may play an important force in promoting the design and implementation of a certificate of competence to EMI teachers.
Anita Dewi March 2017	English as a Medium of Instruction in Indonesian	Two major languages	perceptions of EMI in the Indonesian context are	to implement a compulsory bilingual curriculum, to

	Higher Education: A Study of Lecturers' Perceptions		highly complex. More empowerment is still required for students to be internationally competitive.	facilitate the empowerment of all tertiary-level students, equally. reinforcement of English competence needs to be targeted

Table 2: Findings collected from relevant studies

4.1 Challenges of teachers in a Vietnamese University

The case study in the article "EMI Programs in a Vietnamese University: Language, Pedagogy, and Policy Issues" by (Nguyen et al. 2017) shows that the lecturers' language practice in an EMI classroom consisted of a mix of Vietnamese and English. The teachers consequently encountered some serious difficulties. Teachers with high proficiency did not match the level of knowledge of their students, and teachers with low or average proficiency allowed for confusion and a lack of focus. The English language assistance made accessible to the learners also didn't impress them. In light of all of this, the advised overcoming techniques for teachers were academic language and learning skills courses tailored to specific disciplines rather than generic English for

Academic Purposes offerings. Increasing workshops, and seminars on EMI-related pedagogical approaches for teachers' professional development.

4.2 Use of EMI in Korea

Although the use of EMI in Korean Universities was very problematic, a number of issues had been brought up but not yet resolved. As lecturers had varying language approaches and insufficient resources, it was difficult to establish a suitable learning environment in the classroom. Korean Universities have taken several steps to support the expansion of EMI classes to address these problems. It was recommended that there be a need for an English language center where professor groups may receive organized English language instruction and services. Such a facility might offer testing to determine the English proficiency of lecturers, needs, and analysis to pinpoint the particular problems affecting teachers in EMI lectures, and, if necessary, specialized linguistic support. Universities were employing experts who can instruct in English and mandating students to take EMI classes in order to develop EMI. Additionally, they were focusing on creating a conducive learning environment in the classroom (Kim, 2017).

4.3 Continuous Professional Development Program in Pakistan

In a recently published study of Pakistan, it was observed that the worldwide pandemic affects the growth of CPD (Continuous Professional Development) of teachers. Another major problem detected was less research on subject-specific teacher education. To overcome this challenge, it is recommended to focus on active learning and reflection, CPD, peer collaboration,

self-development, and self-care for teachers. Also reforming the hiring policy of lecturers (Raza et al. 2022).

4.4 EMI teachers' case studies in Japan

Four case studies of Japan represented some major challenges for EMI teachers and classrooms. The classroom practices the use of small-group discussions, teaching through real-life experience, and learning through authentic interactions. The problem was that the size of the set data is small. In most cases, classes in language and culture are taught by professionals in language education creates a gap for other areas of discipline, and is yet to be investigated. Most importantly teachers lack proficiency in English. EMI in higher education in Japan can be significant for the concurrent learning of content and EIL (which the author terms CELFIL: Content and English as a Lingua Franca Integrated Learning), Content-Based Approach as an effective approach to teaching EIL could be the coping strategy (Hino, 2017).

4.5 Complex patterning of multilingual language use in Singapore

Kingsley Bolton and Werner Botha (2017) mentioned in their paper "English as a Medium of Instruction in Singapore Higher Education" that although English was the sole official language of higher education and public education generally, in Singapore, the bilingual government policy had contributed to a complex patterning of multilingual language use in relation to the four languages. The classroom practices formal registers in English. Needed to consider the wider multilingual ecology of Singapore society and the often-complex multilingual worlds of Singaporean university students' code-mixing and code-switching.

4.6 Teachers' assessment in EMI in Cambodia

"A Case Study of Assessment in English Medium Instruction in Cambodia" by Stephen H. Moore (2017) here the classroom practices blend of content, CLIL (Content and Language Integrated Learning), and Content-based teaching (CBT). The challenge that aroused was many students lacked the motivation to work continuously across the semester. Teachers work without systematic moderation practices. Many lecturers often wrongly perceive assessment and testing as 'unpaid' work. Fairness, adequacy, and sufficiency of the Testing Regime and assessment for learning were suggested to solve the problem.

4.7 EMI challenges in Taiwan

In the universities of Taiwan, the challenges that were noticed was difficulty in meeting students' expectation, teachers' lack of confidence in their ability to teach. Lecturers experience difficulties communicating content in English due to the low proficiency levels of Taiwanese learners (Huang, 2015). Increasing teacher training opportunities to moderate classroom discourse, accuracy (explaining concepts clearly), and flexibility (communicating in different ways and on different levels) can help teachers in their professional development (Fenton-Smith et al. 2017).

4.8 EMI teachers' language practice in Bangladesh

Language Ideology, Language Management, and Language Practice in English-Medium Universities were all topics of a recent Bangladeshi article. As I read this study, I learn that there

was a code-switching phenomenon between the local language and English in the courses. The author noted that the lecturers only spoke English when there were observers present, although, in regular classes, they used both Bangla and English. As a result, the students struggle. Later on, it was advised in the study that private universities should increase their teacher preparation programs for the lecturers of the discipline's subjects in order to solve the difficulties. Recent graduate requires education and support to be able to equip themselves to teach others. Other pedagogical elements are also prevalent, in addition to EMI, and they should be carefully communicated to inexperienced educators (Sarkar et al. 2021).

4.9 PD programs in China

The EMI classrooms at Chinese universities featured two languages. The article discussed the difficulties that arise when there is no agreement on the status that an EMI certification should have or on the identity of the awarding authority. Lack of incentives and requirements that are obvious. Therefore, as revealed in the study, a number of competencies-related factors must be included in PD programs. The author suggested that administrative power may be a powerful force in encouraging the establishment and execution of a certificate of competence for EMI teachers (Macaro & Hane, 2019).

4.10 Complex EMI perceptions in Indonesia

According to Anita Dewi's research from 2017, two major languages are practiced in the classroom at an Indonesian EMI University. It became difficult to demonstrate how complex EMI perceptions are in the Indonesian environment. For students to compete globally, more

empowerment was still needed. It might be restored by introducing a compulsory bilingual curriculum, which would enable the equal empowerment of all tertiary-level students. Targeted English proficiency reinforcement is required.

Chapter 5 Discussions

The current paper's main concentration is to highlight the state of STEM teachers' state of preparedness for their professional development in EMI courses. In this chapter, the author will discuss the findings in light of the theoretical frameworks the reflective teaching practices proposed by (Mathew et al., 2017), and metacognitive processes and learning specifically for the professional development of lecturers suggested by (Postholm, 2012) through a systematic review.

In a study of Vietnam, the Minister of Higher Education recently announced hiring more teachers with adequate language skills in various circumstances (Dearden, 2014). Staff members may also be required to work with insufficient training and resources (such as coursebooks, assessment tools, and learning materials) (Dearden, 2014; Hamid et al. 2013; Vu & Burns, 2014). The standards for discipline and teaching skills are comparable to those for teaching in an L1, but language competence specifically, imparting content in a second language is of more significance (Wilkinson, 2013). It was envisaged that academics instructing in EMI programs at E-University would possess or earn post-graduate degrees from English-speaking nations, which would make them eligible to instruct in English in an EMI set. The truth was frequently different. The academicians couldn't speak English. As a result, while teaching in English they have double difficulty comprehending the lectures. They couldn't present all their knowledge to the learners. Lecturers found that they frequently lacked access to the tools they used in VMI programs (for examples of this in other contexts, see Hu et al. 2014; Tatzl 2011; Thgersen & Airey 2011). Code-mixing/switching was used by some academics as compensation to improve comprehension, although some students complained about this (Alenezi, 2010). This calls for more than simply knowledge of the discipline's subject. According to Flavell (1979, 1987), the three categories of

metacognitive information are knowledge about a person, knowledge about a task, and knowledge about techniques. The lecturers of E- University could overcome their struggle of comprehending the lectures by considering metacognitive information in practice for their professional growth. As a result, in their continuous learning process, they would be able to learn about themselves as a person. Also, lecturers would be benefitted to perform tasks by planning. This would open areas for them to identify their professional gap and get over it. Understanding oneself as a person who is constantly learning and thinking is known as knowledge about a person. Metacognition is a process of self-regulated learning (Postholm, 2012). The consultative process could also benefit from advisory input from faculty-level academics with experience and expertise in implementing and managing EMI programs (Nguyen et al. 2017).

For instance, Korea University has made it necessary for students to complete 5–10 courses in a foreign language, specifically in English, before graduating. Additionally, beginning professors must complete three to five years of post-employment teaching in English or a foreign language for all of their courses (So, 2014b). In other words, colleges are employing professors who are proficient in teaching English and mandating students to enroll in EMI courses to increase EMI. Universities have also given financial rewards and reduced class hours to academics who deliver EMI (Kim, 2010; Kim, 2011a).

The idea that institutions expanded EMI to get ahead in university rankings has consistently drawn criticism. Universities have implemented EMI in an authoritarian manner without consulting faculty members or properly taking into account their linguistic and teaching abilities for EMI. Most faculty members in Korean universities are Korean nationals. International students have complained about the instructors' frequent usage of Korean in EMI classes. International students at one engineering university reported that they were barred from enrolling in particular courses

so that the courses might be taught in Korean. Additionally, they claimed that in presumably EMI seminars, some instructors refused to speak English and continued lecturing in Korean (Yun, 2014). The professors surveyed felt that being unable to deliver their knowledge of major fields to a satisfactory level was the most crucial problem for EMI. It's important for aspiring teachers to analyze their methods and consider all of their options. (Yang, 2009) contends that while most teachers are not prone to critical reflection, student teachers should be given an appropriate opportunity to do so. This demonstrates that reflectivity is a skill that must be acquired and does not just come naturally. Teacher educators should put this idea into practice in the classroom to foster a learning environment where teachers can link theory to practice. The results should next be examined and discussed. The teacher educator motivates prospective teachers and urges them to put those tactics into practice during their teaching practice sessions by utilizing reflective teaching techniques (Mathew et al., 2017). For specific faculty support programs, overseas English language programs where professors can further develop their English skills (see Fenton-Smith et al. 2017), linguistic support from English language experts or EFL professors, and workshops and video training on EMI methods have been proposed (Cho, 2012; Kim, 2014; Kim & Shin 2014; Maeng et al. 2011; Oh & Lee, 2010b; Shin & Choi, 2012; Yun, 2009).

How developing nations like Pakistan deal with the constantly shifting demands of modern professional environments, which force instructors to create flexible and fluid self-identities is remarkable. According to (Raza et al. 2022) book chapter "Teacher Development through Outreach Programs," teacher development is a continuum of learning that takes place throughout a teacher's entire career. Early learning typically focuses on building a knowledge of practice, with later discussion and reflection opportunities helping teachers learn new things about their job and demonstrate their skills. When the authors were working on this paper, the COVID-19 worldwide

pandemic happened. As a result, the process of research paused. During that time, teachers worldwide but specifically talking about Pakistan suffered a lot. In their outreach program, they focused on female teachers in Pakistan. The teachers were in the same situation as any other educator in the world, coping with job opportunities, complete isolation, reduction of salary, and adjustments in survival. However, the authors realized the importance of self-development and self-care. A significant element that gets overlooked in times of change and during periods of uncertainty. Continuous Professional Development is reflective and socially constructed. To reignite learning, they decided to set up development programs online for smaller groups through discussions. One of the main goals of the outreach program was to involve as many colleagues as possible from outside Pakistan to support TESOL in the nation, particularly in light of the obvious absence of infrastructure and pertinent regulations for teacher development. The authors valued reflective teaching practices for lecturers' professional growth in the name of Continuous Professional Development (CPD). The reflective teaching practices include reflective journals, collaborative learning, recording lessons, teacher educators' feedback, peer observation, students' feedback, and action research (Mathew et al., 2017).

In the first case from the paper "The Significance of EMI for the Learning of EIL in Higher Education: Four Cases from Japan", it is overviewed that at the beginning of the Japanese Literature course in an undergraduate class the number of enrolled students was approximately thirty who were from

Germany, the Netherlands, France, Finland, Mexico, Canada, Australia, mainland China, Hong Kong, Taiwan, Thailand, the Philippines, and Japan. The majority were not "native speakers" of English. While the other university instructors were Japanese this particular course was taken by an instructor who was from the US. The classroom practice was small group discussions on an

aspect of Japanese literature. Collaborative efforts were given as a result the students could learn with real-life experiences rather than artificially stimulated learning. It was a content course more than a language course. But in the end, the number of domestic students was reduced to three. Although the instructor is unsure of the precise cause of their departure, she stated that one of the main factors was likely their poor English skills. Lack of English language proficiency is a concern that affects many local students enrolled in EMI in higher education, not just in Japan (Doiz et al. 2013). This situation clearly illustrates the need for EMI teachers to grasp the metacognitive learning process in addition to reflective teaching techniques. For a while, the US instructor's reflective teaching techniques in the classroom had a favorable effect, but he was unable to achieve his objective because he lacked knowledge about the person, task, and technique which are the three categories of metacognitive information. Metacognitive information plays a vital role in knowing which techniques can be applied in various contexts, as well as in directing one's own learning processes by applying metacognitive methods (Postholm, 2012).

Next in the third case, in an undergraduate class in Asian studies, the lecturer was a Singaporean. There the classroom practice was active discussions in small seminars of five students. As the author stated the classroom seemed perfect for EIL learning because of the content of his teaching which emphasized the linguistic and cultural diversity of Asia including varieties of English. The students were provided with valuable linguistic and cultural experiences in receiving the kind of English that functions as a vehicle of non-Anglophone identities. The lecturer shared his experiences in the interview session that he was not like this from the beginning. Through observation of classes and students' remarks, he developed positive awareness in the classroom. The fourth case is also likely to be the third case, where the teacher was a non-native speaker but the teaching outcome was positive. The Content-Based Approach is cited by Hino

(2012b) as a successful method for teaching EIL. One of the key tenets of ELT nowadays is that language learning is most effective when it involves meaningful practice, such as in EMI classes with explicit content. It has been noted that the lecturers for the third and fourth examples initially tried to teach themselves before attempting to teach others. Using their prior experiences as a guide, they filled in their gaps and completed their EMI courses successfully. By using metacognitive knowledge, educators now have a platform on which to work constructively on their professional development (Postholm, 2012).

In this paper on Cambodia, while interviewing the teachers, it has been found that Teachers have a great deal of freedom. As the Deputy Head told it, "In terms of professionalism, we trust our lecturers," and this faith extends to teachers creating their own continuing assessment tools. One may therefore conclude that this causes significant diversity in assessment experiences across the same courses in the same degree program in the absence of formal moderation techniques. The credibility of the results is seriously questioned because there was little to no acknowledged moderation or comparison between other classes of the same course. Teachers have the discretion to raise or lower test and assessment scores, which appears to undercut the requirement that testing and assessment be equitable for all students (Moore, 2017). The faculty interviews indicated a notion that many students lack the ambition to work consistently throughout the semester, despite being enrolled in one of Cambodia's most esteemed degree programs. To stimulate motivation and learning in EMI the importance of formative assessment is immense. The provision of effective feedback to students, adjusting teaching to take account of assessment outcomes, continuous assessment, the need for students' self-evaluation, and awareness of strategies for improvement. Here, the author advised switching to formative assessment for a structured approach to teaching and grading. Formative assessments are a part of reflective teaching strategies. Reflective

evaluation has a solid theoretical foundation, which includes theories of cognitive constructivism in learning. Students can experience assessment as an integral component of learning through this procedure, as opposed to an independent evaluation process (Bond, 2006). One noticeable challenge was the teacher's lack the motivation to work except for a few. Assessment and testing are often wrongly perceived by many lecturers as 'unpaid' work. Many IFL teachers appear to prioritize their own needs more often than they consider what is best for their students as a whole. One major factor was that teachers were not investing enough time in their professional growth through metacognitive learning and reflective teaching approaches. Effective classroom management would be made clear to teachers through reflective teaching techniques and metacognition. Teachers might work with motivation and students would enjoy themselves. In a situation where teachers learn from their own professional experiences through practice-based professional development, reflective practice is an essential ability.

It is a process of ongoing education (Mathew et al., 2017).

In multiple Taiwanese Institutions, students from China enrolled in EMI courses. The main reason was their instructors. One explanation could be that Taiwanese higher education has historically been teacher-centered, placing the teacher at the forefront of learning (the expert), with students less likely to see themselves as active agents in the classroom and larger learning context (Fenton-Smith et al., 2017). Meeting students' expectations of their (i.e., the lecturers') ELP is one challenge for many local lecturers, with some students expressing disappointment regarding instructors' English delivery abilities (Huang, 2015). Though lecturers' academic qualifications may be impressive (e.g. PhDs from Anglophone countries). According to a number of studies, Taiwanese students' inadequate English ability makes it difficult for lecturers to effectively communicate topics in English (Huang, 2015). Another challenge for lecturers is dealing with

mixed classes of local and international students. The pressure to cover the same amount of discipline content through EMI as they would try to do in an L1 environment is another issue that many instructors are concerned about. Concerns regarding the breadth and depth of content that they (teachers and students) might engage with in English were expressed by every lecturer in (Huang, 2012) study. The literature is unanimous that more PD is necessary to support the switch to EMI and give lecturers a place to talk about and address the issues with EMI that they are facing (Chang 2010; Hou et al. 2013; Huang 2012; Huang & Singh 2014; Wu 2006; Yeh 2014). Programs for professional development (PD) should include reflection on present practices, experimentation with alternative pedagogical approaches, and exposure to a variety of communication modalities in learning and teaching environments. Reflective teaching is a significant part of the student teachers' initial training program.

It has also been broadly embraced by many academics as a tactic that could aid in instructors' professional development and improve the quality of education. Reflective teaching, according to (Jacobs et al., 2011), allows instructors to revise their approaches and understand the outcomes of their lessons. They continued by saying that reflective teaching provides information on the meaningful connection teachers have with their students and supports effective teaching and learning techniques (Mathew et al., 2017).

The lecturers of a HE uses only the English language when the observers are present in the classroom, according to the study "A Phenomenological Study of the Language Ideology, Language Management, and Language Practice in English-Medium Universities in Bangladesh: Lecturers' and Students' Voices" by (Karim et al. 2021). Nevertheless, both Bangla and English are used in regular sessions. Students fail to comprehend as a result. One of the teachers who participated in the authors' interview process said he was competent in imparting knowledge using

EMI in the classroom. This is because he received his undergraduate and graduate degrees from abroad. While lecturing in an EMI class, the other two teachers all reported a similar experience of difficulty. The classroom observation data pertinent to this content also suggested, lecturers, use Bangla alongside EMI. The authors argued that as HE in private universities is imparted through EMI, the quality of education has been compromised. Besides, teachers themselves are equipped with little proficiency in English. Teachers should employ Bangla alongside EMI, according to the relevant classroom observation data. The authors argued that because HE is delivered through EMI in private universities, the quality of education has been affected. In addition, teachers themselves have limited English language skills. The Bangladeshi lecturers must focus on their professional development in order to learn English and to overcome other obstacles. It is simple for a lecturer to develop their talents if they have knowledge of themselves as teachers, as well as an understanding of objectives and procedures. The teachers could use these types of metacognitive data developed by Flavell (1979, 1987) to monitor their lack of ability in a particular language for teaching EMI courses and to get ready for future endeavors (Postholm, 2012).

The interview data in Macaro and Hane's paper "English Medium Instruction in China's Higher Education: Teachers' perspective of competencies, certification, and professional development" (2019) suggested that teachers may choose to teach in English due to internalization concerns and concerns about international university rankings. The majority of the interviewees said they would prefer a uniform process, supported by incentives from the organization, for choosing and being chosen as EMI teachers.

Overall, teachers in the interview sample were not very thrilled about reading EMI-related research, demonstrating their grasp of it, or learning how learners learn components of an L2. In addition, at least one-third didn't want to be monitored. This is consistent with a previous study

on teachers' lack of materials and time for more efficient EMI teaching (such as in Lei and Hu 2014). The study found several skills-related variables that need to be considered in PD programs, including the national context, the degree of international transferability, general competences, and subject-specific competencies. The greatest degree of certification could then be awarded to someone who successfully handles each of these dimensions. The framework enables EMI teachers in particular and teachers in general at the higher education level to create and administer PD programs in a more systematic manner. Research has been conducted on reflective teaching as an essential part of teachers' professional development, (Griffiths 2000; Akbari 2007; Killrn 2007; Conley et al., 2010; Jacobs 2011; Mathew et al., 2017). The strategies that help to accelerate the reflective practice are reflective journals, collaborative learning, recording lessons, teacher educators' feedback, peer observation, students' feedback, and action research (Mathew et al., 2017). We just suggest this concept here as a potential direction for future PD-based research, of course (Macaro & Hane, 2019).

Anita Dewi aims to highlight the professors' opinions on the use and existence of the English language in her paper. Some of the many opinions people had about instructors had to do with the focus of the recent study. One of the patterns observed in the responses to an open-ended question in the questionnaire was the relationship between English proficiency and competency in other skill areas. One participant said that "great competency in another field will be less acknowledged if somebody has no ability in English". English, according to another participant, can be used to "advance research and enhance the quality of teaching." The adoption of a bilingual curriculum (Bahasa Indonesian/English) in universities nationwide in 2016 was recently announced by the Minister of Higher Education (Dewi, 2017). With the assumption that they will "communicate in English and all academic references would use English words," the policy aims

to "promote English fluency among all students and teaching staff" (The Jakarta Post, 2015) and effectively communicate knowledge to learners, but also what (Wilkinson, 2013) refers to as "language competence," or the ability to effectively teach subject matter through English. Two different groups of lecturers conducted the interviews. English language lecturers made up the first group, and other subject lecturers made up the second. According to the research, the majority of them are in favor of using English as the primary language of instruction. However, because the Indonesian language is so important in the classroom, teachers and students both struggle (Dewi, 2017). By employing metacognitive techniques learners can plan, lead, regulate and control their own learning (Boekaerts et al., 2000; Flavell 1976; Zimmerman 2001, 2006). In addition, metacognitive information plays a vital role in knowing which techniques can be applied in various contexts, as well as in directing one's own learning processes by applying metacognitive methods. Teachers should evaluate their teaching in order to advance professionally. They may then get ready to deal with the problems that will arise. By using metacognitive strategies and learning, EMI teachers in Indonesia can get ready to overcome the aforementioned difficulties.

Chapter 6 Conclusion

The current study aims to comprehend the level of STEM teachers' professional development preparedness to teach EMI courses in the Asia Pacific area. The study's findings showed the difficulties faced by academics in advancing their careers. The study's integration of previously available literature to understand the degree of teacher preparation and professional growth in EMI institutions in the Asia Pacific area is one of its limitations. Even though there was a conflict between the theoretical viewpoints and the prior literature, the addition of actual data would improve the caliber of such investigations. Future empirical studies may start with the data summarized in this paper. Future researchers can create questionnaires and carry out a thorough survey in the countries of Asia in the EMI universities and other similar contexts that instituted EMI in HEIs to examine the type of professional development contained by university teachers based on the phenomenon relevant to EMI and teachers' professional growth reported in this study.

I have discussed the situation of EMI teachers from several Asian nations. EMI teachers primarily struggle with their command of the English language and have a lack of resources for furthering their professional development. It was determined that the language management segment strategies were insufficient to support EMI implementation. For instance, it has been seen in the majority of cases that PD and certification do not exist or are inadequate. Setting up suitable PD and certification programs would be the first step if the situations demanded that they overcome the hurdles. Every institution should run professional development (PD) programs for STEM instructors, with a focus on teaching methods, the utilization of appropriate materials, and specific jargon from each area.

I strongly urge the PD to include some information about "both the cultures (e.g., social, academic, etc.) their overseas students bring to the EMI classrooms, as well as how the students interpret and understand the educational culture at home" (Soren, 2013, p. 170). Additionally, a thorough conversation with the instructors must be started to enlist the needs that should be addressed in the programs in order to assess the efficacy of the proposed professional development and certification programs. In addition to this, teachers should take an effort to improve their lesson plans in light of their previous and current experiences. They ought to concentrate on how sociocultural and discipline-specific circumstances affect their teaching methods. Accumulating all strategies suggested above can contribute to creating teachers' professional growth, which would empower teachers to dedicate themselves to EMI implementation.

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