

## The Perceptions of Thai Tertiary-Level Engineering Students and Lecturers towards English as a Medium of Instruction

Prowsaeng Poosinghar<sup>1\*</sup> Dr.Intisarn Chaiyasuk<sup>\*\*</sup>

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### ABSTRACT

This study examined the perceptions of Thai Tertiary-Level Engineering students and lecturers using English as a Medium of Instruction (EMI). Two study questions were formulated. They were 1) What are the perceptions of Thai Tertiary-Level Engineering students and lecturers using English as a Medium of Instruction (EMI); 2) How do Thai tertiary-level Engineering students and lecturers use English as a Medium of Instruction. The data for this study was gained through using a questionnaire with a 5-rating scale and by conducting interviews. This study was carried out with two hundred fourteen Engineering students and sixty-five lecturers at one of the universities in Northeastern Thailand. To complete the data analysis, descriptive statistics were employed to analyze the quantitative data, while the qualitative data was explored using discourse analysis. The findings indicated that according to students' perceptions, they felt that they had needed to study harder when required to learn a subject in English in the international program ( $\bar{X}=4.46$ , S.D.= 0.67). Although it had been more difficult, the students were able to identify specific reasons for studying in the international program. Meanwhile, based on the lecturers' perception figures, they believed that EMI could provide students with the skills necessary for a successful life in business after graduating from the university ( $\bar{X}=4.48$ , S.D.= 0.68). Moreover, the lecturers argued that the study of Engineering requires a different level of English proficiency. Hence, EMI can help students to better prepare to acquire sufficient skills. The implication of the study is that the implementation of EMI could benefit students by providing them with learning experiences that could promote greater proficiency, which is needed in the workplace. Therefore, creating and conducting an EMI preparatory program for students and lecturers is an urgent matter. Such a program would allow them to become more qualified and would encourage them to better comprehend the specific purposes of learning by incorporating EMI.

**Keywords:** English as a Medium of Instruction, Perception, Engineering

<sup>1</sup>Corresponding author: [prowpo@kku.ac.th](mailto:prowpo@kku.ac.th)

\*International Relations Officer, International Affairs Division, Khon Kaen University

\*\*Assistant Professor, Faculty of Humanities and Social Sciences, Mahasarakham University

## Introduction

The remarkable growth of English as a Medium of Instruction programs in non-English speaking countries has been one of the most prominent Higher Education (HE) trends of the twenty-first century [1]. HE institutions in Thai are forging ahead to this trend, adopting English to internationalize the curriculum and cultivate local students with necessary skills to participate in an international professional community [2]. To be recognized by global community will leverage the existence of the university to figure out the impact from the interactions among students related to learning outcomes [3].

To emerge as the one who can communicate globally, the university must be well equipped with the sufficient language as the EMI offers students to grow their performance for the future experience. EMI becomes necessary as the information nowadays used mostly English language as their medium. Hence, to understand better the information and avoid misleading information, students view English language as the tool that can benefit them to gain accurate information. In the institutional view, the implementation EMI is for the reason that may be various and contextual and dependent. They include a perceived need to internalize the higher education institution for the purpose of prestigiousness and competitive to attract foreign students due to falling enrollment numbers of local students through changing demographics, national cuts in higher education investment, and the need of the public sector to compete with the private sector [2]

Numerous countries adopt English as a medium of instruction (EMI) to implement in tertiary level education. For example, The Bologna Process initiated the meeting and the agreements between European countries to establish the standard of higher education and Philipson stated that “internationalization means English is a medium of instruction” [4]. In today’s Europe, there is a huge increase in the number of master’s programs taught. In 2002, there were 560 Master programs in English conducted in 19 EU countries excluding the UK and Ireland [5]. Also, Bachelor courses in European universities raised from 55 in 2009 to 2,900 in 2017 [6]. For example, more than 25% of university programs in Denmark are offered in English and they found both positive and negative attitudes towards EMI. For a positive attitude, most lecturers viewed that EMI could create the “internationalization” of the university while some of them disagree with it since it decreased the learning process [7]. Also, [8] explored the impact of English-medium instruction on university student academic achievement: The case of accounting, and the result showed that English as a Medium of Instruction supported students’ academic outcomes.

Although not an empirical study, [9] provides an overview of the internationalisation of Thai higher education and illuminates the motivations of the government and of Thai universities in moving towards internationalisation goals. International programmes are reportedly implemented to generate fee income and the growth in programmes only serves particular demographic groups. [10] explored the beliefs about and practices in EMI in Austrian, English and Thai multilingual EMI universities. Using

interviews and questionnaires with students and lecturers, their results with regards to the Thai setting revealed that lecturers focused on intelligibility rather than 'standard' English when communicating with their students, and while English was mainly used, Thai was often necessary to promote students' understanding.

Furthermore, English language in the context of learning engineering requires the students to give more efforts to understand the meaning and the terms used in the learning processes. As known that Engineering terminology includes topics that deal with the understanding of technical manuals, as well as shapes and sizes, dimensions, equipment and tools, and everything else that asks student to have sufficient knowledge of engineering-based English language [11]. Hence, teaching English to engineers is a delicate and demanding matter in terms of content, methods, and techniques, and deciding which are appropriate for this particular area of engineering and English.

Although, the complexity of learning Engineering using English language are faced by the students, through EMI, many students can enhance their English skills while acquiring subject knowledge by being exposed to English over relatively longer periods. By learning their subject knowledge in English, students are trained to become professionals who can work in diverse workplaces or are prepared for academic careers where English skills are required. Therefore, students can recognize the benefits and take advantage of EMI opportunities.

On the contrary, one study mentioned that many causes ranging from the lecturer and instructional methodologies to even the personality of the students affects native language negatively [12]. Also, another effect that EMI influence is that learning difficulty faced by students during the instruction cause students not being able to comprehend and internalize the subject matter to a full extent [13]. The other result is similar to [14] in the sense that EMI decreases the comprehension skills of the students, thereby leading to failure problems in academic studies.

Since EMI instructors are supposed to use English language to teach the content regardless of their actual or self-assessed English proficiency levels. The ability to use English language to be teaching instruction can impact the quality of their learning and the ability to deliver challenging content [5]. In Asia, for example, many EMI lecturers have content expertise but are limited English proficiency, confidence, and/or experience teaching courses in English. For instance, Vietnam's recent program demanding that 20% of university students be taught in EMI in specific courses by 2015 has proven to be challenging, as both undergraduate students and lecturers have low English competence. Even though academically trained instructors appear competent, they may not be able to lecture and interact with students at a suitable level [15].

One study of the use of English language in Thailand education context concluded that the level of English proficiency among native Thai speakers ranged from very low to very high. On average, Thai English skill was acceptable for communication purposes. In addition to using English expressions, Thai speakers were shown to have effective communication methods and welcoming attitudes while

communicating in English [16]. However, several studies stating that Thai English in the context of higher education is not that well prepared yet. Currently, Thai people continue to rush to international programs which use EMI to sharpen their English proficiency as well as mastering the content. However, criticisms still remain to arise as the teaching and learning of English in Thailand's basic education has not been efficient to provide students with an adequate level of proficiency to speak and perform satisfactorily in international tests [17].

There is a noticeable gap in the literature with regard to the specific context of Thai tertiary-level engineering education. While Thailand has made significant efforts to promote EMI in various academic disciplines, including engineering, there remains a dearth of comprehensive studies that investigate the perceptions and experiences of both students and lecturers in the Thai engineering education context. Existing study on EMI often tends to be concentrated in Western and European contexts, which may not necessarily align with the unique challenges and cultural factors present in Thai higher education, especially in the field of engineering. Thus, this study aims to address this gap by delving into the perceptions of both Thai engineering students and lecturers regarding the use of English as the medium of instruction.

Furthermore, considering the evolving landscape of higher education and the increasing internationalization of Thai universities, it is imperative to explore whether the perceptions towards EMI have evolved over time. Thus, this study also aims to contribute to the literature by offering a longitudinal perspective, tracking changes in perceptions among both students and lecturers as EMI becomes more integrated into the Thai engineering curriculum.

Therefore, its process of learning English and utilizing it for the specific purpose still required more efforts to conduct for the better preparation. EMI is one of tools that many higher education institutions find it beneficial and impactful for the preparation of human resource. Especially in the engineering learning context, many international programs have led the trend in Thai higher education possibly for using EMI sufficiently, due to the field's dependency on the English language for knowledge acquisition and communication with students and engineers around the world.

Hence, this study addresses the perception of Thai tertiary-level engineering students and lecturers towards English as a Medium of Instruction. It is hoped that this study would construct new concept for the knowledge of the effects of EMI in higher education on language proficiency, particularly in contexts where EMI is initiated in Thailand. It is hoped that the findings of this study would encourage lecturers to reflect on their own EMI methods and make the necessary adjustments that will benefit their students' acquisition of English towards mastering engineering context.

## Objectives of the study

The objectives of this study were

1. To investigate the perceptions of Thai tertiary-level Engineering students and lecturers towards EMI
2. To investigate Thai tertiary-level Engineering students and lecturers using EMI

## Methodology

### 1. Study Design

The study design of this study was carried out with mixed method. The rationale was to integrate qualitative and quantitative methodologies in order to diminish the limitations and to enhance the strengths. To be more precise, [18] figured out that the investigator tries to make inferences by integrating the findings of both quantitative and qualitative approaches. This definition suggests that mixed methods approach gathers the requirements of quantitative and qualitative approaches together in an attempt to interpret the data from different points of views. Another aspect of mixed methods approach is that it is used to gain broad and deep understanding and interpretation [19]. Moreover, to triangulate the identical findings, it is appropriate to mix the quantitative and qualitative methods.

### 2. Study Instrument

Data collection instruments included an adopted questionnaire, individual interviews; each of which was administered in such a way that the studyer could compare and contrast quantitative and qualitative findings. For quantitative data, this study used a questionnaire as the instrument. The questionnaire was designed as 5-rating scale questionnaires and the response scale for all components ranged from 1 (lowest level) to 5 (highest level). The questionnaire was also divided into three sections. Section 1 sought background information about EMI lecturers and students' program, academic year, learning English experience, gender, and going to English native speaker experience. Section 2 investigated the perception of the students towards EMI that consisted of three main components. These three main components were under [20] ROAD-MAPPING framework that were designed differently for lecturers and students. The questionnaire was sent out to students comprised 7-item of overall perceptions, 7-item of course and materials, and 5-item of internationalization and language learning. of overall perceptions, 7-item of course and materials, and 5-item of internationalization and language learning. Meanwhile, for lecturers consisted of 10-item of overall perceptions, 6-item of teaching and language learning. Also, three invited experts commented on 35 items. For content validation, items were judged on content and ambiguity led to changing the several words. Finally, there was no item removed or changed, it was just modified based on suggestion that asked to substitute several words into cognitive words. The purpose was to check whether the sample understood the items and were able to answer the items about their experience.

A pilot test of the 35 items was also conducted among lecturers and students in Thai Northeastern university which has the same characters of the sample that included 214 engineering students and 65 lecturers. All items were valid where Corrected Item-Total Correlation  $>$   $r$  table, confirmed corrected item-total correlation score 0.92. Items that loaded into hypothesized components in the pilot study would be used as valid instrument. This pre-study led this study used all items which concluded that all items showed total alpha level for all items was 0.975. These results for alpha levels were very high reliability and acceptable. The order of the items in the questionnaire was randomized to avoid bias in further factor analyses.

Individual interviews were conducted with four lecturers and three students. Both interviews included semi structured questions aiming to discover opinions of participants about their perception toward EMI. Moreover, there were questions searching for detailed information on some specific aspects for participants' opinion and view toward EMI. Interview questions were in parallel with the items in the questionnaire. Interview questions directed to lecturers and were also in the same direction so that the study could corroborate qualitative and quantitative findings. For the sake of validity, interviews were carried out online in order to provide participants to express themselves fully and clearly.

### 3. Study Population and Sample

This study recognized limited number of classrooms implementing EMI. There were 498 engineering students and 65 lecturers selected as population from one of the universities in the northeastern part of Thailand. Therefore, this study involved 214 engineering students after using Krejcie and Morgan criteria. Meanwhile, 65 lecturers were selected directly without declining the number of sample since the its number was small. Data collection followed procedure to create a precisely targeted sample in terms of experience and level of education. A survey was distributed online. Participation was voluntary. The intention of study was offered to participants upon completion of the study. Two weeks after the launch of the instrument, everyone originally contacted to participate received an email reminder. In total, 214 students and 65 lecturers completed the instrument online version. The sample size met recommendation for indicating the scale of perception.

## Conceptual Framework

Academic documents and study work were synthesized that related to perception toward EMI in order to measure the phenomena. The study assumed that there is learning challenges and obstacles that happened in EMI classroom. Therefore, this study was conducted in investigating the perception of lecturers and students toward EMI implementation. This led to the stipulation of the following theories:

Finally, the perception of lecturer and students towards EMI in this study was analyzed by using the framework described by [20], namely, ROAD-MAPPING conceptual framework. The following are the definition of each component. First, overall perceptions refer to the views that justify the benefits that

are provided from EMI. There were several indicators of overall perceptions, namely, Appropriateness of Courses, Program Management, Language Preparation, Learning Experience, and Student Satisfaction.

Second, course and materials refer to the supporting activity and media that assist learning effectiveness. This definition elaborates several indicators such as Curriculum Alignment, Course Objectives and Outcomes, Language Policies, Authentic Materials, Inclusive Practices, Monitoring and Evaluation, Language Policy Compliance. Also, internationalization and language learning refer to the condition to which allows the subjects experience any activity and learning based on global environment. This definition indicates several indicators such as Global Networking, Language Proficiency Development, Global Competencies, Promotion of Multilingualism, and Enhanced Academic Mobility.

Meanwhile, lecturers' perception that consisted of two components as described as follows, first, overall perception refers to the EMI effects that offer to the lecturer to help them teach effectively. Second, teaching and language learning refers to the EMI positive influence during teaching and learning. The following the figure showed the results of the synthesizing of this study.

Underlying Theory	Theoretical Perspective	Methodology	Instruments
At tertiary level, students and lecturers may have different perception towards EMI	Reasoning toward learning/teaching content knowledge through EMI; overall perceptions, course and materials, and internationalization and language learning	Mixed Methodology	Questionnaire Interviews

(Adapted from [21])

**Figure 1** Design of the study

## Analysis of Data

Quantitative data was collected and then analyzed and interpreted into the new perception. This study calculated Descriptive Statistics (mean and standard deviations) to investigate the perception of Thai Tertiary-Level Engineering Students and Lecturers towards English as a Medium of Instruction. To know the level of perception, the level would be interpreted based on the criteria [22]. Mean scores were interpreted into different criteria as follows: 4.51 to 5.00 refers to the perception was very high, 3.51 to 4.50 refers to the perception was high, 2.51 to 3.50 refers to the perception was medium, 1.51 to 2.50 refers to the perception was low, 1.00 to 1.50 refers to the perception was very low.

## Result of study

1. Perception level of Thai Tertiary-Level Engineering Students and Lecturers towards English as a Medium of Instruction

The first result was Thai Tertiary-Level Engineering Students towards English as a Medium of Instruction as shown in table 1 below showed mean scores and standard deviations. As can be seen that Table 1 shows the mean scores and standard deviations of Thai Tertiary-Level Engineering Students indicated the score ranging from 3.66 to 4.25. The average mean score of Thai Tertiary-Level Engineering Students towards English as a Medium of Instruction was at high level ( $\bar{X}$  = 4.05, S.D.= 0.75).

The second result Thai Tertiary-Level Engineering lecturers towards English as a Medium of Instruction was also analyzed. However, the result of analyzing lecturers' perception indicated mean scores and standard deviations of their perception towards EMI. The mean scores for all two components were ranged from 4.05 to 4.17. The average of Tertiary-Level Engineering lecturers towards English as a Medium of Instruction were gained that score mean and standard deviation was high level ( $\bar{X}$  = 4.11, S.D.= 0.75). The following table 1 were the means score and standard deviation of each component of Thai Tertiary-Level Engineering Students and Lecturers towards English as a Medium of Instruction.

**Table 1** Mean and Standard deviation of the perception

No.	Perception toward EMI	Students			No.	Perception toward EMI	Lecturers		
		$\bar{X}$	S.D.	Level			$\bar{X}$	S.D.	Level
1.	Overall perceptions	4.25	0.81	High	1	Overall perceptions	4.05	0.74	High
2.	Course and materials	3.66	0.71	High	2	Teaching and Language Learning	4.17	0.75	High
3.	Internationalization and language learning	4.25	0.73	High		Average	4.11	0.75	High
	Average	4.05	0.75	High					

As can be seen from Table 1, both Thai tertiary-level engineering students and lecturers hold a diverse range of perceptions towards English as a Medium of Instruction (EMI) in their academic context. While some participants expressed positive perceptions, highlighting the potential advantages of EMI, such as improved language proficiency and enhanced global competitiveness, others raised concerns and challenges related to language barriers, comprehension difficulties, and the potential marginalization of Thai culture and language. This diversity in perceptions suggests a complex landscape wherein the acceptance and effectiveness of EMI vary among individuals.

Regarding the course and materials aspect, the study findings underscore the significance of well-designed, contextually relevant instructional materials and pedagogical approaches in EMI settings. Furthermore, the study revealed that the availability and quality of EMI course materials play a pivotal role in shaping the overall experience of students and lecturers. Inadequate or poorly designed materials

can lead to frustration and hinder effective learning, while well-crafted resources can enhance the educational experience.

The study findings suggest that EMI can serve as a catalyst for internationalization in Thai engineering education. Participants acknowledged that exposure to English as a medium of instruction can facilitate cross-cultural interactions, promote global networking opportunities, and prepare students for international careers in engineering. This aspect aligns with broader goals of internationalization within higher education.

2. The result of the extent the Thai tertiary-level Engineering students and lecturers use EMI

a. Thai tertiary-level Engineering students' perception toward EMI

Regarding the perception toward EMI, students expressed various views such as happiness, hope and joy. The interesting point was that second-year students reported that they had decided specific reason to take class in EMI implementation. They seem happy and understand that learning in the international programs was beneficial to improve English language skills, to use it for a future career path and working in abroad. Also, to analyze the data comprehensively, categorization is needed to analyze the perceptions of Thai Tertiary-Level Engineering Students and Lecturers towards English as a Medium of Instruction. Hence, the first-cycle coding result is very much needed such as follows.

**Table 2** From Theme to indicators

Theme	Indicators
Overall perceptions	<ul style="list-style-type: none"><li>- Informant defines the courses or subjects of the international program are appropriate to learn.</li><li>- Informants understand the international program management is well coordinated.</li><li>- Informant worked an English training course before starting the international program is necessary.</li><li>- Informants think learning subject in English is a positive experience for me.</li><li>- Informants who understand the subjects can respond to students' satisfaction.</li><li>- I need to study very harder while learning subject in English in the international program.</li><li>- I would recommend this international program to others.</li></ul>
Course and materials	<ul style="list-style-type: none"><li>- Lecturers can speak clearly English while teaching.</li><li>- Lecturers introduce the course syllabus and commitments clearly before starting the course.</li><li>- Lectures should use English in the whole teaching hours without any other languages used.</li><li>- Students are available enough on the English materials</li><li>- Perception of learning subjects in English is not as different as learning in Thai.</li><li>- The evaluation in international program is more difficult than regular program.</li><li>- The course contents in the international program have met the expectations.</li></ul>
Internationalization and language learning	<ul style="list-style-type: none"><li>- Taking the international program will have a positive effect on my professional future.</li><li>- Taking part in this program may improve my English.</li><li>- Studying in the international program encourages me to find more English materials.</li><li>- Following lessons in English has provided me with technical vocabulary and skills in English.</li><li>- Preparing to study and even working in a foreign country that uses English.</li></ul>

**Table 2** From Theme to indicators (Cont.)

Theme	Indicators
Teaching and Language Learning	<ul style="list-style-type: none"><li>- Lecturing in Thai can promote learners' interest in learning more than lecturing in English.</li><li>- EMI will provide learners with being more successful in business life after university.</li><li>- Learners tend to neglect those subjects taught in English.</li><li>- Learners' gains regarding their fields of study increase via EMI not different as Thai medium instruction.</li><li>- Lecturing in Thai produces a better classroom atmosphere than lecturing in English.</li><li>- Students utilize their academic and social environments more in Thai medium instruction.</li></ul>

In summary, the study findings illuminate a multifaceted landscape encompassing overall perceptions, course and materials, internationalization, and language learning in the context of English as a Medium of Instruction (EMI) within Thai tertiary-level engineering education. Participants' overall perceptions range from enthusiastic endorsement to apprehensive skepticism, highlighting the need for a nuanced approach to EMI implementation. Course and materials considerations underscore the pivotal role of tailored, context-specific resources in facilitating effective EMI, while internationalization emerges as a compelling avenue for global engagement and networking. Simultaneously, the intricate process of language learning in an EMI environment reveals opportunities for skill development and cultural exchange, although it also necessitates proactive strategies to address language-related challenges. Together, these components form a complex ecosystem that requires careful attention and strategic planning to harness the benefits of EMI while mitigating potential pitfalls in the Thai engineering education context.

b. The relevant excerpts about the issue are given below.

The findings suggest that EMI can serve as a catalyst for internationalization in Thai engineering education. Participants acknowledged that exposure to English as a medium of instruction can facilitate cross-cultural interactions, promote global networking opportunities, and prepare students for international careers in engineering. This aspect aligns with broader goals of internationalization within higher education.

One of the challenges is that *“It is challenging, and there are some parts that I cannot understand. Maybe because some of the lecturer’s accent is hard to catch, or the content contains the engineering technical terms which makes it harder to understand. However, when I try to find the meaning, I get to understand better, but overall is okay.”* (Student 1)

*“I want to be able to use English, especially for future work in my field, Telecommunications engineering. There are affiliates both inside and outside the country, so, if I graduated and gained enough experience, I would love to work abroad. Being able to use English for work definitely helps us to achieve good advantages over the regular program when it comes to the consideration of the job applications.”* (Student, 2).

Regarding challenges posed by EMI, students mentioned that they did not understand content knowledge totally, not speaking in English about their profession, losing concentration, difficulty in notetaking, differences in lecturers' use of English, expensive English materials, having no special dictionary for technical terms and lecturers' fast talk. Statements of two participants represent those challenges:

*"The challenge is probably about speaking English. We have to have the courage to speak and most of the environment. At home speaks Thai. When I come to study at the international program, I motivate myself"* (Student 3, SSI).

*"The challenge is that the assignments brought us to improve ourselves all the time to get good marks and for a better self. For example, we've never presented any works in English, so we need to practice it, that's the challenging part of it."* (Student 4, SSI).

There are numerous factors that have an impact upon the reason of students toward EMI. Even the students' level of study is different, there can be some identical purpose and decision about EMI. Therefore, such a complicated issue as perception should not be neglected if the aim is to improve the quality of EMI courses. It is necessary to figure out the gap for improvement.

c. Thai tertiary-level Engineering lecturers' perception toward EMI

Two themes similar to what was found in interviews with students emerged in total. In accordance with perception toward EMI, lecturers highlighted that they could be demotivated, unsatisfied, doubtful or happy depending on what they experienced in EMI courses as demonstrated in excerpts below:

*"I felt it was a good course and the students get some benefit for the future work because nowadays engineering work must use English"* (Lecturer 1).

*"I think it's a good thing because it gives the students opportunities to study in the international schools or international programs. Currently, almost 80% of students study at international programs, and most of them graduated from international schools or courses taught in English"* (Lecturer 2).

In terms of effects of teaching and learning language on EMI, lecturers were generally positive about their own teaching skills in English whereas they were not content with their students' English language skills. As to vocabulary, they agreed with students on the idea that it was not easy to use English terminology. Statements of lecturers related to this issue are as in below:

*"The difficulties are the basics of the students' English, especially the vocabulary. If students can accumulate more technical terms in the 3rd year, it will be fine for both of us"* (Lecturer 1).

*"And English is not our first language so sometimes I can't go on and have to switch to speak Thai. It's like I need to be prepared, to be able to teach it out well"* (Lecturer, 2).

Overall, interview findings of students and lecturers are in consistency in regard to perception levels of EMI, all experiences in EMI setting becomes the influential factor of teaching and learning effectiveness to a great extent to EMI implementation.

## Discussion and Conclusion

Based on the findings, students seemed to be mostly obvious with the reason of attending international program which implements EMI. This result confirmed by questionnaire results might not be in accordance with interview results because interview results showed that both EMI students and lecturers referred to instrumental reasons to a great extent. This may point to the fact that extrinsic or pragmatic reasons were dominant in the perception of students and lecturers.

Taking view on EMI were diverse and depended on what of each learner experienced in EMI courses. The most common perception was happy and proud because of clear purpose and understand the challenge while studying in EMI courses. This study indicated that students who are studying in the engineering international program feel happy and satisfied. Some students find this international program challenging as they need to put an effort to understand the vocabulary and lecturers' communication abilities. This result is similar [23] study who concluded that students' perceptions and expectations toward international program are due to the service quality offered and provided. Therefore, EMI in the international program will become more effective since the level of proficiency meets the standard accurately. It seems that international programs still need to provide lecturers and students with preparation courses such as training EMI teaching techniques and English preparation courses.

Also, the result highlighted that students need to understand well the terminology or engineering vocabularies. However, they are not sure about the context that is suitable for their knowledge. Since lecturers may use the materials exported from abroad, this action may not be the core issue if the curriculum provided accommodate local context needs. Hence, it may be useful for Thai students to develop EMI curriculum for many subjects as it is important. Also, technical vocabulary, speaking English, and assignments become the other challenge that many students are aware of. These points indicated that English proficiency may vary among students. However, the most important thing is the improvement of students themselves towards using English as their medium in the classroom. [24] figured out that factors are determined not only by language proficiency but also by other factors, such as prior content knowledge, motivation, and the classroom learning environment.

All participants in interviews underlined the fact that EMI was beneficial for their learning activity as [25] mentioned that lecturers could use various teaching strategies to develop students' learning. However, it should be stressed that lecturers also must understand that learning using EMI requires pedagogical support to encourage learner learning awareness [26]. In other words, lecturers should be

trained for effective lecturing in English [27] or they may be assisted in terms of effective teaching strategies that could be used in EMI courses.

In contrast, the other results showed that the lowest mean score of the lecturer's perception of lecturing in Thai can still promote students' interest in learning more than lecturing in English. This perception indicated that using English is also able to influence students' interest in learning. This finding is interesting as the lecturer can use the English language in EMI implementation effectively. It can be inferred that lecturers still can adapt to using English to teach the content.

Interaction between lecturers and students is the key to the success of learning. However, using the English language to teach students creates different responses. The lecturers believed that all the information available during teaching hours provide students with deep and meaningful information as English language is the language that has many words to describe the content. Hence, students are able to access that information. However, some students find it difficult as the cognitive ability factor is not yet used to comprehend the vocabulary. [28] reported on such benefits for students to include complete information and intercultural understanding while receiving the new experience of learning using English.

To sum up, the present study mainly investigated that there is an urgent need to re-regulate the current EMI policy in one of the Northeastern universities in Thailand. Firstly, it could be made possible to implement EMI in other education levels after necessary regulations are completed for the basis of EMI. Related to this, language courses in the preparatory programs can be reshaped according to the pre-requisites of EMI which is offered in the university or since high school. These two points are to provide students to have a sufficient level of English early because if they do, then they become more qualified in their specific study area, and this directly affects their understanding positively. Moreover, institutional support might be necessary for long-term success in contexts where English is the medium of instruction [29]. Otherwise, EMI implementations may be ineffective if students' proficiency level of English is limited [30].

## Suggestions

There are three suggestions that were offered after conducting this study, they were:

a. This study encouraged to provide the type of support students need, both at the entrance and throughout the program. Hence, supporting structures for students to overcome specific issues on understanding vocabulary, lectures, and exams in English are necessary.

b. This study highlighted the need for increased collaboration between lecturer and language instructors. The collaboration among lecturer and English for specific purposes lecturers would benefit to conduct effective teaching methods in EMI classroom.

c. This study suggested that textbooks and materials used in teaching should be considered in light of the needs of the local community as opposed to being borrowed from the US or UK context.

Texts and content should reflect local needs, which is something that may have to be taken into account for helping students match with the local setting challenge.

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