The Perceptions of Thai Tertiary-Level Engineering Learners and Teachers towards
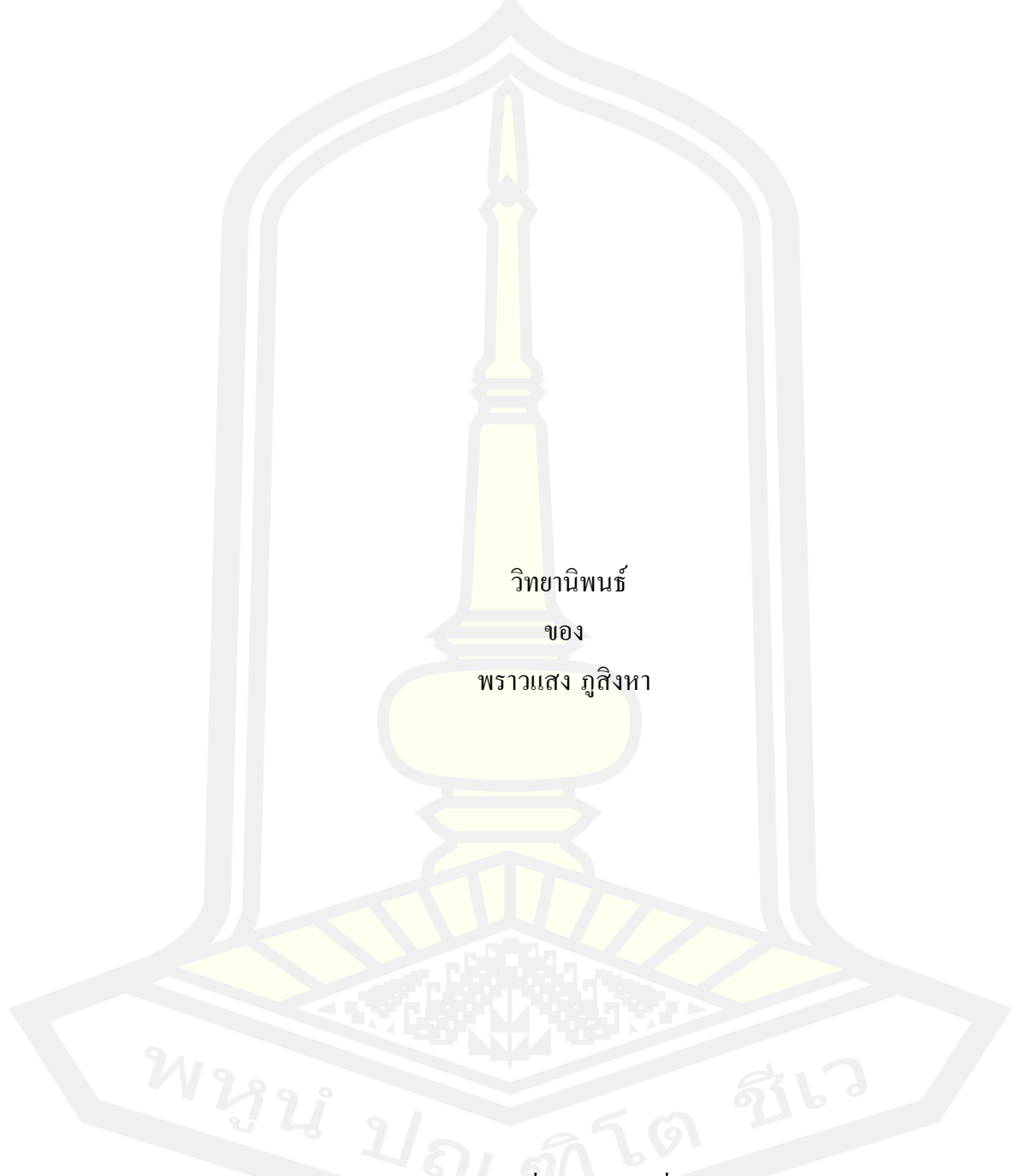English As Medium Instruction

Prowsaeng Poosinghar

A Thesis Submitted in Partial Fulfillment of Requirements for

degree of Master of Education in English Language Teaching

August 2022

การรับรู้ของผู้เรียนและอาจารย์วิศวกรรมศาสตร์ในระดับอุดมศึกษาไทยต่อการใช้ภาษาอังกฤษเป็น
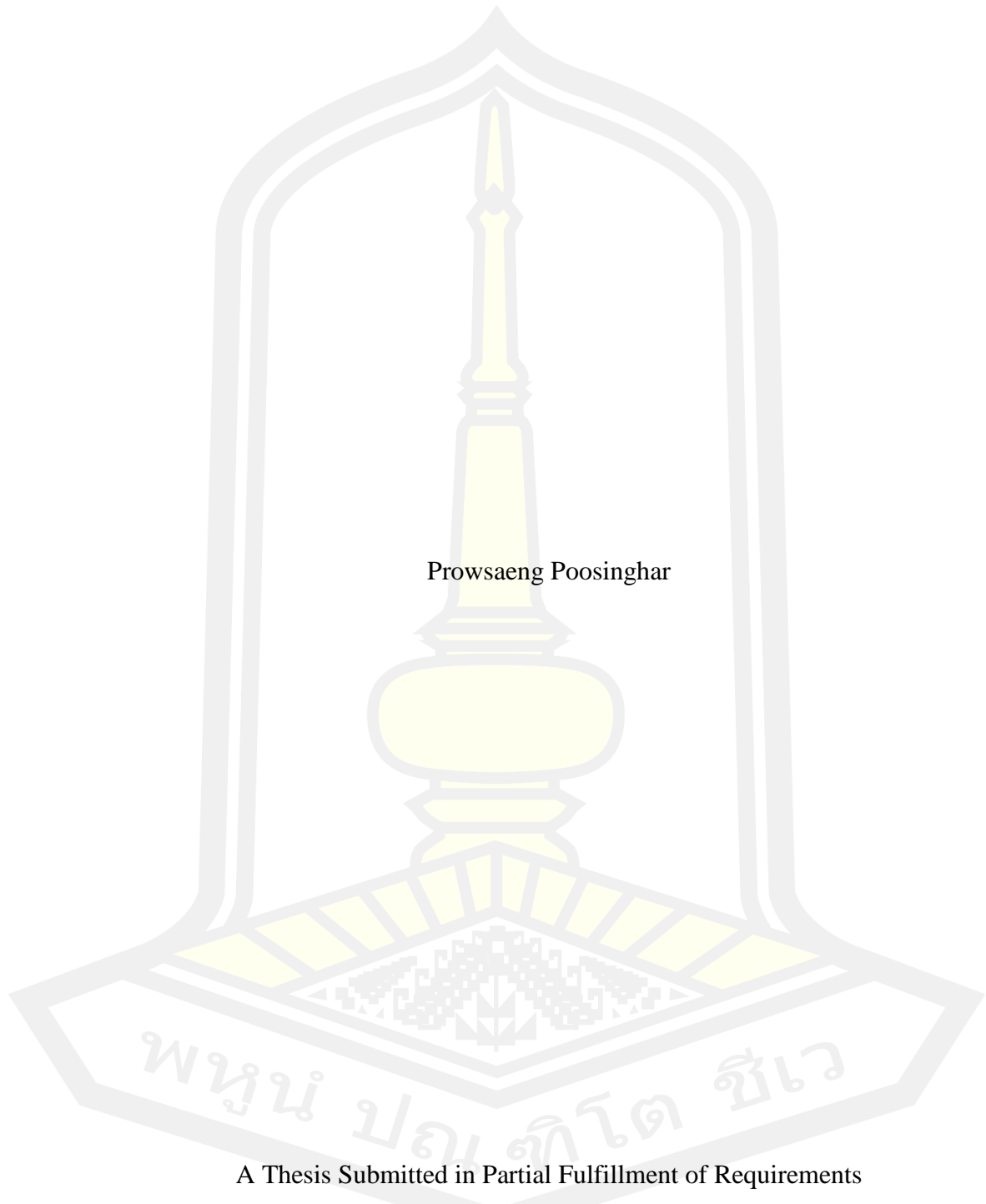สื่อกลางในการสอน

วิทยานิพนธ์
ของ
พราวแสง ภูสิงหา

The Perceptions of Thai Tertiary-Level Engineering Learners and Teachers towards
English As Medium Instruction

Prowsaeng Poosinghar

A Thesis Submitted in Partial Fulfillment of Requirements

for Master of Education (English Language Teaching)

August 2022

The examining committee has unanimously approved this Thesis, submitted by Miss Prowsaeng Poosinghar , as a partial fulfillment of the requirements for the Master of Education English Language Teaching at Mahasarakham University

Examining Committee

....Chairman
(Asst. Prof. Apisak Sukying , Ph.D.)

....Advisor
(Asst. Prof. Intisarn Chaiyasuk ,
Ph.D.)

....Committee
(Pilanut Phusawisot , Ph.D.)

....Committee
(Assoc. Prof. Supakorn
Phoocharoensil , Ph.D.)

Mahasarakham University has granted approval to accept this Thesis as a partial fulfillment of the requirements for the Master of Education English Language Teaching

....
(Assoc. Prof. Nittaya Wannakit , Ph.D.)   (Assoc. Prof. Krit Chaimoon , Ph.D.)
Dean of The Faculty of Humanities and   Dean of Graduate School
           Social Sciences

TITLE	The Perceptions of Thai Tertiary-Level Engineering Learners and Teachers towards English As Medium Instruction		
AUTHOR	Prowsaeng Poosinghar		
ADVISORS	Assistant Professor Intisarn Chaiyasuk , Ph.D.		
DEGREE	Master of Education	**MAJOR**	English Language Teaching
UNIVERSITY	Mahasarakham University	**YEAR**	2022

ABSTRACT

This study aimed to (1) investigate the perceptions of Thai tertiary-level Engineering learners and teachers towards English as Medium Instruction (EMI) and (2) explore the extent to which learners and teachers of Thai tertiary-level Engineering learners and teachers use EMI. This research applied a mixed method to understand the perception of the learners and teachers. This research was divided into two phases. The first phase was completely done by conducting a survey. A five-point rating scale questionnaire was distributed to 214 learners and 65 teachers to investigate the perceptions of learners and teachers of Thai tertiary-level Engineering learners and teachers towards EMI. The samples were selected through the purposive sampling method. Descriptive statistics analysis was calculated to indicate the level of perception of learners and teachers. The second phase applied a semi-structured interview to explore learners' and teachers' in-depth perceptions of using EMI in engineering classes. There were 4 learners and 4 teachers who participated in the interview section. The interview data were analyzed by using coding and thematic analysis. The results revealed that logistic Engineering is the highest program that students studying in the 3rd year get to do. The logistic field has become a famous industry, especially in international business. Therefore, this may be the reason that caused learners interested in choosing to learn in this field, and the 3rd year students are in the period of preparation to graduate. Also, generally, lecturers found that their students can take notes, read academic texts, interact, and listen through EMI instruction. Taking all of this into consideration, this study provides suggestions for EMI to develop further in Thailand's higher education institutions as all the lecturers have voiced similar positive points on the importance of EMI implementation.

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

LIST OF TABLES

List of Figures

CHAPTER I
INTRODUCTION

The purpose of this chapter is to introduce the study on the perception of Thai tertiary-level Engineering learners and teachers towards English as Medium Instruction (EMI). There are seven elements namely; background of the study, research questions, purposes of the study, scope of the study, the definition of terms, and significance of the study.

1.1 Background of study

In the era of globalization, English has become an international language to communicate across the world since it could meet the growth of local, national, and international demands. Therefore, it is possible that English as a medium of instruction (EMI) has increased in various countries (Coleman, 2006; Knight, 2008) in terms of academic advancement, career achievement, traveling abroad, economic growth, and technology (Hengsadeekul et al, 2014) to gain a highly international identity. EMI is also becoming widespread in contexts, where English is used as a foreign language (Dafouz & Camacho-Miñano, 2016) and taught as a subject (Evan & Morrison, 2016). Therefore, English as a medium of instruction may have benefited worldwide regions.

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" (Pitsuwan, 2014)(Philipson, 2009). Moreover, the Erasmus program motivated European countries to form the EMI programs (Murata & Lindo, 2018). In today's Europe, there is a huge increase in the number of Masters programs taught. In 2002, there were 560 Master programs in English conducted in 19 EU countries excluding the UK and Ireland (British Council, 2014). Also, Bachelor courses in European universities raised from 55 in 2009 to 2,900 in 2017 (Bothwell, 2017). For example, in Norway, there has been recently an increase in English-taught

postgraduate programs (Ljosland, 2011). Moreover, more than 25% of university programs in Denmark are offered in English (Jensen & Thongerson, 2011) and they found both positive and negative attitudes towards EMI. For a positive attitude, most teachers viewed that EMI could create the "internationalization" of the university while some of them disagree with it since it decreased the learning process. Dafouz & Camacho-Miñano (2016) 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 instruction supported students' academic outcomes.

Similarly, in Asia - Pacific, EMI has played an important role with two main factors. First, there has been currently an increase in regional economic growth. For example, ASEAN (Association of South-East Asian Nations) and APEC (the Asia-Pacific Economic Cooperation). Both economic foundations aim to develop and strengthen economic, social growth and regional consistency. Therefore, it is necessary to use English as a lingua franca to drive a regional community (Guerero, 2010). These elements have influenced the tertiary level to be a concern on course and program of study to increase English language competence to meet the future workforce (Kirkpatrick and Sussex 2012). Second, there is an increase in higher education in Asia. For instance, the enrolment at the postgraduate level has increased by 300% and 400% respectively in the last decade in Thailand and Malaysia, (Chien and Chapman, 2014).

Moreover, a lot of universities in Asia have been leading outbound students as well as started actively promoting themselves in higher education positions. For example, in China, since 2003 international higher education has raised by 13%, under 78,000 enrolments from the total of 380,000 in 2014, and they also plan to expand the education to external Asian students with 500,000 enrolments in schools, colleges, and universities level in 2020 (IEAA, 2015). Nevertheless, since 2016, international students have been satisfied to study at Beijing universities (Xinyang, 2016) because they create it to become an attractive place. Similarly in many Asia areas: in Malaysia, the number of international student enrolment has raised more than 25% between 2010 and 2015. In Japan, it occurred similar to that of Malaysia with an increase of 180,000 international students in 2014, and both South Korea and Singapore influence foreign students more than their country students. This higher

education trend has been driven by Asian countries such as Indonesia, Pakistan, Thailand, and a lot more. The increase of domestic Asian students that influence international students is more effective than worldwide ones.

Thus, from the situations presented above, EMI is needed to develop this sector, and there are many scholars paying attention to conducting research related to EMI. For example, Channa (2012) studied Teachers' perceptions of the English language as a medium of instruction in Pakistan, and the results showed that more than half of the participants viewed that EMI can positively respond to global and future needs. Kym, & Kym (2014) explored students' perceptions of EMI in higher education in Korea and the result showed that students' overall level of satisfaction and ability to comprehend was significantly different according to the instructor's native language (native English speaker or non-native English speaker), background knowledge, and study-abroad experiences. Vhu and Burns (2014) studied English as a medium of instruction: Challenges for Vietnamese tertiary lecturers and the result revealed that lecturers were challenged by their language abilities, students' language competence and learning styles, pedagogical issues, and resource availability. These studies show that both teachers' and learners' perceptions of EMI in higher education are positive. However, it is also challenged today, especially at the tertiary level.

In Thailand, Thai is used as the main language to communicate in society and in education. Hence, using English as a medium of instruction seems much more challenging for the higher education system, especially, at the tertiary level. However, to pursue disruptive globalization, providing EMI to support universities is very crucial for both learners and teachers. Consequently, most Thai universities apply EMI to support instruction for regular curriculum (Using Thai for teaching and learning and use EMI as a textbook and give an assignment or mixed mode of learning (Hengsadeekul et al, 2014). Speaking of the International programs, English is used as the language for learning and instruction.

There are some research studies related to EMI. Kantavong (2015) investigated EMI for Thai Subject courses on undergraduate students at the Tertiary level, and the results illustrated that the learning approaches employed in this study helped students to develop both their English comprehension and their written material and also have a positive attitude toward learning English. Similarly, Xu &

Chuaychoowong (2017) explored a case study of teachers' beliefs and practices with English-Medium Instruction (EMI) at Mae Fah Luang University, and they found out that teachers managed every section of the knowledge very clearly in the EMI classroom. In contrast, some scholars are pointing out that EMI seems not suitable to employ alone. Channa et al (2012) found that less than half of the students in universities preferred the mother tongue instead of the target language to be used in the learning process. However, based on what the mentioned above, there are a few studies conducted on the perception of tertiary-level learners and teachers towards EMI. Hengsadeekul et al (2014) suggested that higher education policies need to be concerned about the values and beliefs of students of English as a medium of instruction for both undergraduates and graduates. Park (2014) investigated the perception of the International Business Management Instructors, Students, and Parents through EMI in Thai – Japanese institutions, and the study only focused on Business courses. Penthisarn (2021) found that Thai EFL teachers perceived EMI as an educational advantage, a preparation for the international community, and an approach to enhance students' speaking confidence. However, to gain more rich information, the study suggested using purposive sampling when collecting the data. Similarly, the study by Kym et al (2014), suggested that in-depth interviews should be conducted with the participants to expand the comprehension of how content and language can be learned simultaneously. Moreover, there were several studies conducted in the Engineering context, at the tertiary level; Kim et al (2017) studied Korean engineering students' perceptions of English-medium instruction (EMI) and L1 use in EMI classes. Therefore, it could be beneficial and significant if the researcher investigates other specific fields, especially in tertiary-level engineering by focusing on the perception of learners and teachers of using EMI in their classes.

English is increasingly being required in international higher education to access cutting-edge research and technology and to interact successfully in the global marketplace. Globally, educational institutions are developing EMI programs to prepare students for opportunities by providing them with content knowledge and language instruction. In Thailand specifically, where rapid industrialization and globalization have drastically impacted all levels of education, English requirements

have outpaced teacher instruction capacity. At this point, there is inadequate research investigating how EMI is implemented in the university.

Therefore, this study would like to fill the gap in previous studies and investigate perceptions of the tertiary level of both Engineering learners and teachers in an international program at a university in northeast Thailand in the view of EMI instruction. The results are believed to develop EMI and discuss other feasible implementations.

1.2 Research Questions

There are two research questions as follows:

1. What are the perceptions of Thai tertiary-level Engineering learners and teachers towards English as Medium Instruction?

2. How do Thai tertiary-level Engineering learners and teachers use EMI?

1.3 Research Objectives

Research objectives were as follows:

1. To investigate the perceptions of Thai tertiary-level Engineering learners and teachers towards EMI

2. To explore how Thai tertiary-level Engineering learners and teachers use EMI

1.4 Research Scope

This study investigates the perceptions of Thai tertiary-level Engineering learners and teachers towards EMI and explores how learners and teachers of Thai tertiary-level Engineering learners and teachers use EMI. The participants are learners and teachers at the faculty of Engineering one of the northeastern universities in Thailand. Moreover, four undergraduate international programs: (1) Chemical Engineering, (2) Logistic Engineering, (3.) Digital Media Engineering, and (4.)

Telecommunications Engineering will be chosen. Both qualitative and quantitative inquiry will be applied to collect the data in this study.

1.5 Definition of Terms

1. Perception refers to an idea, a belief, or an understanding of English as a medium of instruction in engineering courses.

2. Tertiary-level or university level refers to a systematic higher education that provides both university and college (Ministry of Education, 2012) and this study will focus on the faculty of Engineering, an international program in one of the northeastern universities in Thailand.

3. Engineering learners are undergraduate students who study at the faculty of Engineering in northeastern Thailand.

4. Engineering teachers are the teachers who lecture at the Faculty of Engineering in a university in the northeastern part of Thailand.

5. English as a medium of instruction or EMI is the use of the English language to teach academic subjects (or content subjects) in countries or jurisdictions where the first language of the majority of the population is not English (Macaro, 2018).

1.6 Research Significance

By conducting this study, it is hoped that this study gives information that is useful for understanding the use of EMI at the university level. Hence, the significance of this study is elaborated on the following points.

1.6.1 Teacher

The result of this study may benefit teachers to know more information regarding teachers' perspectives on implementing EMI. This information may help teachers to provide adequate instruction that can help a student learn effectively.

1.6.2 Student

This study would benefit students who plan to study in an international program, especially in the faculty of Engineering in Northeastern Thailand. Also, for

current students who would like to know more supporting information regarding learners' perspectives on EMI to plan for a future career path, study abroad, and course study.

      1.6.3 University

      It is hoped that the perception gained as the result of this study can be a new insight to measure the quality of EMI at the university. By conducting this investigation, it is expected that the results can inspire instructor development to enable modifying the learning curriculum. Moreover, for universities related to the education field, the suggestions of this study will be beneficial for international Engineering instruction and curriculum design, especially in the Thailand setting.
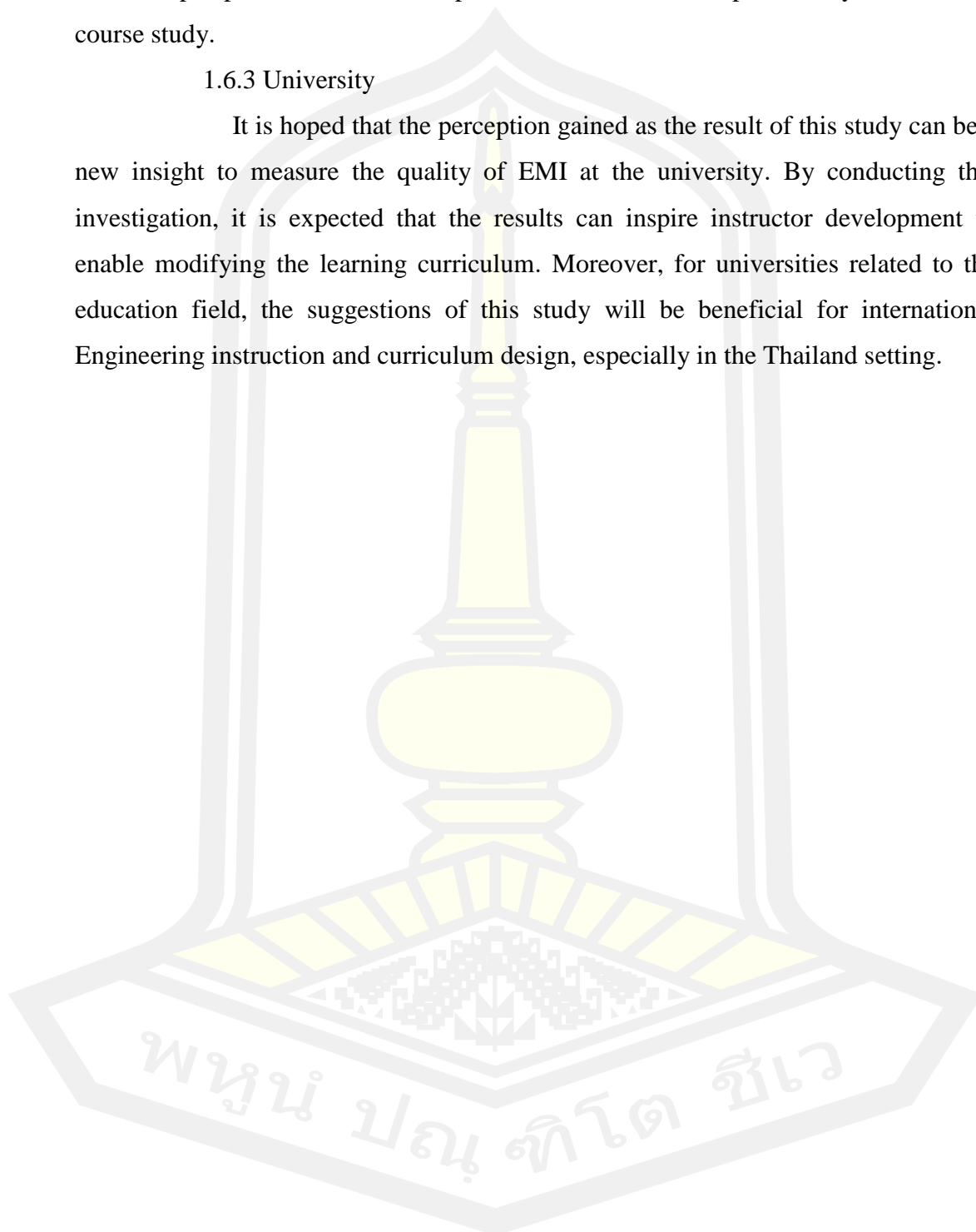
CHAPTER II
LITERATURE REVIEW

The literature review is a framework of thought as a reference, direction, and guidance for the researcher to achieve the research objectives as set out in the first chapter. This chapter involves reviewing the results from research conducted using the same variable as this research. Chapter two includes the viewpoints of English as a medium of instruction to synthesize the concept. Chapter two covers the scope of English as medium instruction, various theories of English as medium instruction, and the framework of English as medium instruction, as well as related research, are elaborated. The outline of the literature is covered as follows.

2.1 Perception

2.2 English for Engineering

2.3 English in Thailand

2.4 English language curriculum in Thailand

2.5 Policies of the Governance and the MOE

2.6 Importance of English in Thai Universities

2.7 English Medium Instruction

    2.7.1 EMI in a Western context

    2.7.2 EMI in Asia context

    2.7.3 EMI in China

    2.7.4 EMI in Korea

    2.7.5 EMI in Japan

    2.7.6 EMI in Vietnam

    2.7.7 EMI in Thailand

2.8 Advantages of EMI

2.9 Disadvantages of EMI

2.10 Previous studies of EMI in the EFL context

2.11 Theoretical Framework

2.12 Summary of this chapter

2.1 Perception

The notion of perception is necessary to identify the influence of language used for a certain purpose. Hence, defining perception that becomes the standpoint before capturing the benefit and importance of using a language. The definition of perception may vary from the characteristics of the subject itself to the context that exists and makes it different. Two types of perception are the most related to language function. One has concluded that the view of perception is a process of predictive inference, and the other refers perception to perception as doing a claim.

2.1.1 Perception as a predictive process

The view of "perception-as-inference" originated with von Helmholtz (1867/2005) and has had many more recent authors, including Ulric Neisser and Richard Gregory. The brain combines prior knowledge or expectations (including knowledge about the present context) with the incoming sensory evidence to yield a percept that reflects its best available hypothesis concerning the most probable state of the world. It is only in recent years, however, that these broad visions have been given effective computational flesh, shown to be (roughly speaking) neutrally plausible, and seen to converge with compelling bodies of work in psychophysics and cognitive psychology showing that much of perception conforms to optimal (Bayesian) ways of combining sensory evidence with prior knowledge within the framework of predictive processing.

On the other hand, viewing perception as a predictive process helps to resolve a long-standing argument concerning whether perception is "penetrated" by knowledge (Pylyshyn, 1999). Within the predictive-processing framework, perception is expected to be penetrable to the extent that such penetration minimizes overall (long-term) prediction error (Lupyan, 2015). If information from prior experience, expectations, knowledge, beliefs, and so forth lowers overall prediction error, then this information will be used to guide perceptual processing (it is reiterated that this process is not a "decision" made by the organism but the consequence of minimization of the prediction error).

Also, a key emphasis of predictive-processing models is an asymmetry between the forward and backward flow of information. The forward flow computes

residual errors, while the backward flow delivers predictions. Percepts emerge via a recurrent cascade of top-down predictions that involve expectations spanning multiple spatial and temporal scales. The downward predictions reflect what the system expects given what it already knows about the world and the current context. These predictions are combined with incoming sensory data to arrive at progressively better guesses about the source of the signal (the world). Aspects of the input that are unexplained are sent forward as prediction-error signals that " carry the news " by pushing unexplained elements of the sensory signal upward to select new top-down hypotheses that are better able to accommodate the present sensory signal. This process runs concurrently and continuously across multiple levels of a processing hierarchy.

However, most of the predictions are unconscious, one can sometimes become aware of them when they are violated. For example, imagine drinking a glass of what you think is orange juice only to realize on tasting it that it is milk. The difference between the taste of that milk when one expects it and when one expects orange juice instead is the orange-juice expectation made conscious (Lupyan, 2015, for discussion) . Similarly, consider the experience of an unexpected omission, as when a musical note is missing from a familiar composition. Such omissions can be as perceptually striking and as salient as the most vibrant tone—an otherwise puzzling effect that is neatly explained by assuming that the construction of perceptual experience involves expectations based upon some kind of model of what is likely to occur.

2.1.2 Perception as doing claim

The other definition of perception argues how past interactive regularities can influence current perception or perception-like experience in a way that remains true to the idea that perception is a doing (O'Regan & Noë, 2001). The sensorimotor approach has described perception as " a mode of exploration of the world mediated by " knowledge of sensorimotor contingencies" (O' Regan & Noë, 2001).

In the sensorimotor theory given by O'Regan & Noë (2001), the idea of perceptual experience as "something we do, rather than something that happens in us" — the perception-is-doing claim, for short— was proposed as one leading to insight in both the problem of phenomenal consciousness as well as into a scientific

program for studying perception. "The activity-based approach", so it was claimed, "enables us to overcome the problem of what has been called "the explanatory gap"—that is, the problem of understanding how something physical like the brain, can generate something non-physical, namely experience. We have solved the problem by noting that experience is not generated in the brain at all." (O'Regan & Noë 2001).

Conceiving perception as doing, allows for an account of perception which explains how the dualistic worries about perception arise, and how they can be avoided. Construing perception as an activity does not mean claiming that perceivers must make movements whenever they perceive. Perceptual and perception-like experience is possible without movement. Experiences such as imagery have a structure that is derived from interactive patterns engaged in by active perception.

Accounting for how absent interactive patterns can play a role in current experience can be achieved in a way by seeing perception as doing in the first place. Seeing perception as doing this opens up a scientific research program that focuses on patterns and interaction. Perception is genuinely a matter of doing, rather than of representing. Therefore, this research is also to analyze the perception of lecturers who have had several years of experience teaching using English as Medium Instruction. To claim the appropriate definition of perception that is suitable for the language form, this perception will be used as the fundamental way for the valid representative that can properly guide the process of collecting data.

2.2 English for Engineering

The context of teaching English language for Specific Purposes (ESP) is currently undergoing significant changes and challenges due to a complexity of factors. One of the factors, with profound effects concerning its outcomes on linguistic acquisition, is the traditional approach which many teachers still embrace when teaching English for Specific Purposes. It is true that, for a long time, the characteristics of the ESP teaching process did not significantly exceed the classic approach to language learning based on the development of language skills (Bhuiyan, 2021). Besides a more systematic approach to technical, specialized vocabulary, the learning process still followed to a great extent the pattern of general language

learning. Dudley-Evans (2020) admitted that teaching ESP requires a specific approach, different from general language teaching. In his definition of ESP, he included three differentiating factors: ESP must be connected to a specific discipline or field of study, teachers should use a different methodology than the one usually used in teaching languages and the level of the students should start from intermediate adult learners.

One of these fields is engineering, and this disciplinary vocabulary remains one of today's most challenging areas for language learners (Wu & Lou, 2018). English has become the international language of almost all professional spheres of international communication (Rackeviciene, Janulevičienė & Mockiene, 2019). The concept of English for specific purposes achieves more in the education of engineering students by focusing the student's attention on the particular terminology and communication skills required in the professional field. Nowadays, teaching English to engineers is considered a very detailed and demanding course (Bekteshi & Xhaferi, 2020). The teachers´ role in ESP courses is crucial, as the criticality of teaching English in the field of engineering is significant in terms of its content, methods, and also technique (Bekteshi & Xhaferi, 2020). 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 requires knowledge of engineering-based English language.

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. That is, such an interdisciplinary course aims to develop and master relevant communication and professional skills, using English as a means and a kind of mediator in shaping future engineers.

To achieve this goal, ESP teachers have to plan the course they teach and provide the materials for it. Rarely is it possible to use a particular textbook without the need for supplementary material, and sometimes no suitable published materials exist for certain learners' needs. The role of ESP teachers thus involves choosing suitable published materials from a variety of reliable and valid sources, adapting materials when published ones are not suitable, and even writing new materials if nothing suitable exists.

The point is that ESP teachers cannot do this task alone, without any help from specialists in a particular area of engineering. Analytical revision and careful selection of the sources of information (including the above) for ESP materials development can proceed with the cooperation of subject teachers. It will help ESP teachers to find out about the subject syllabus in an academic context and the tasks the students have to carry out in a work situation (Bekteshi & Xhaferi, 2020).

To get an ESP course even more integrated with subject studies, cooperation may develop into collaboration, when texts in English being exploited present additional relevant materials, which are part of the actual content of a subject course. Learners may also be better prepared for the language of subject lectures through a series of specifically designed English classes. Eventually, team-teaching as a model of collaboration between a subject expert and an English language teacher might be employed for the benefit of learners who will make the most of this integration (Paltridge, 2012). Overseas experience already indicates that the synergy from team-teaching can significantly improve the writing and communication skills of most students, particularly oral presentations and report writing and that it generated a positive experience for all with a focus on students' needs and interests (Bynom, 2000).

2.3 English in Thailand

English has also become the key to success not only in education but for job applications and work promotion. According to (Pitsuwan, 2014), most ASEAN people do not have proficiency in English. Despite the several years, Thai students spend on English learning in formal education, they are not able to use English in communication. They can guess the meaning of unknown words using context clues but rarely use compensation strategies such as gestures when they cannot think of a word during a conversation in English (Pawapatcharaudom, 2007). Thai learners' performance in English is not satisfactory (Sridhanyarat, Pathong, Suranakkharin, & Ammaralikit, 2021). This low proficiency of Thai users and learners of English has been reviewed in the EF Proficiency Index (2015) in which Thailand ranked 62 out of 70 countries (EPI score of 45.35)

To solve the problem of Thai learners' low ability in English attempts at English reforms in Thailand have been evident dating from the National Education Act (1999). According to the National Education Act of 1999, English is not compulsory, but it is one of the foreign languages required to be taught at the secondary level as it is a required subject in the National University Entrance Examination. The importance of English has become more obvious with the major reform in the Basic Education Core Curriculum in 2008 concerning English as a compulsory subject at the primary school level (Grades 1–6).

This is to meet the goals of the Eleventh National Economic and Social Development Plan (2012–2016) emphasizing human resource development in all age groups by equipping learners with language proficiency in both Thai and English, developing skills for lifelong learning, raising their morale and ethical principles, and recognizing rapid changes at national and international levels in terms of economic and socio-cultural impacts, especially for and from the integration of ASEAN community in 2015. This requires national unity, learning standards, and goals aimed to enable the children and youth to acquire knowledge and skills, favorable attitudes, and morality to serve as a foundation for 'Thai-ness' and universal values (Cultural, 2011).

Regarding raising learning standards and goals in English, Thai institutions have developed their standards of evaluation, and assessment such as the Chulalongkorn University Test of English Proficiency (CU-TEP) and the Thammasat University General English Test (TU-GET), mostly benchmarked with one of the international standards. There is rarely a continuation of the standards at the national level. Learners' and users' abilities in English, therefore, are gauged by a variety of standards and criteria. To illustrate, the English Language Development Centre (2005) measured the English ability of several professionals using four standards such as understanding and interpreting spoken and written language on a work topic.

Internationalization of higher education was another initiative that accelerated the use of English as a medium of instruction in programs offered by higher educational institutes. Leading public universities such as Thammasat, Chulalongkorn, and Kasetsart also began to offer international programs for Thai and

foreign students using English as a medium of instruction (Kaur, Young & Kirkpatrick, 2016).

2.4 English language curriculum in Thailand

The emergence of English as a world language is a necessary phenomenon for higher education graduates to communicate fluently with each other thus has become a prerequisite to a successful employment opportunity, especially in Asia (Kung, 2013). Globalization has given us more access to diverse resources educationally, linguistically, and financially. On top of that, English has been formally adopted as the Association of Southeast Asian Nations (ASEAN) official language and the medium of communication among the participating countries to encourage collaborative activities toward achieving quality education in the region, particularly in professional development programs, educational research, and other technical administrative support (Luanganggoon, Phantharakphong, Sae-Joo & Huntula, 2018).

English education in Thailand has been shaped by policies and curriculums that, in most cases, are not locally generated. They are designed by the Office of Basic Education for the primary and secondary levels; and the Office of Higher Education for the tertiary level (Boonsuk, 2016). These institutions have the sovereign authority to mandate and control how education in Thailand flows. In contrast, teachers have minimal control over the educational designs even though they have the intelligence on what works best contextually and culturally, for the target learners. In addition to the limited control in policymaking and planning, all official mandates must be undeniably carried out, meaning that, in Thailand, English teachers should foster native English proficiency using Britishized or Americanized English language teaching approaches and pedagogies (Prabjandee, 2020) developed by native English scholars according to what they perceived universally appropriate (Jindapitak, 2019).

The Ministry of University Affairs has issued the reform of English language teaching and learning in Thai higher institutions (Wiriyachitra, 2009). This reform has been done through the proposal for change made by the committee to plan for the development of the English curriculum in Thai universities. This proposal was made

with the consensus of the heads of the English departments and coordinators of Foundation English courses. Changes are planned to be completed in four years. There will be only one set of English scores used to consider students entering the university, that is the English language scores from the English Proficiency Test of the Ministry of University Affairs.

Universities will use the scores from this test to place students according to their level of proficiency. Those who are weak will take a remedial course first with no credit. Those who have average proficiency will take the first compulsory English course. If they come with higher proficiency, they will be placed in the second or third compulsory course and can take other advanced English courses to make up the required credits. A recommended score range to place students according to their level of proficiency was already made (Wiriyachitra, 2009).

As for English major students, English Departments can decide whether or not students should take the same compulsory language course in the General Education Curriculum as students from other faculties. University students who choose to take English as their language subject must take at least four compulsory English courses. Foundation courses 1 and 2 are integrated language skills and study skills courses; the others may be English for Academic Purposes (EAP) or English for Specific Purposes (ESP) courses as required by each major. Goals and standards of Foundation English courses 1 and 2 have already been proposed to use in writing a national curriculum for these courses in the near future. Every university student will take a National English Proficiency Test before leaving the university. This is not an exit exam and students can take it at any time and any number of times (Wiriyachitra, 2009).

The results will show his/her proficiency in each skill. The results will not appear in the transcripts but can be used in employment applications and for further education in Thailand. The groundwork for the National University English Proficiency Test has already been planned. Research has already been carried out to examine this test: its balance, systems, skills, modes, and content areas. A committee will be set up to study international standardized tests to select the proper profile for this test. With the research results and the selective profile, another committee will be assigned to write test specifications and test items (Wiriyachitra, 2009).

2.5 Policies of the Governance and the Ministry of Education

In a similar endeavor, the Thai Ministry of Education (MOE) has also made efforts to internationalize higher education allowing public and private universities to run international programs with English as a medium of instruction. The internationalization of higher education in Thailand is one of the strategies for instilling and promoting job-based skills among Thai students with a focus on improving English language abilities (Chalapati, 2007). Further reforms by the Ministry of University Affairs targeted the areas of language teaching and learning and development of the English curriculum in Thai universities. One of the proposals was that universities shall recognize English language scores from the English Proficiency Test of the Ministry of University Affairs for university entrance. The changes also emphasized that students – who opt for English as their language – must complete at least four compulsory courses in English. Courses such as English for Academic Purposes (EAP) or English for Specific Purposes (ESP) were required as major subjects (Wiriyachitra, 2009).

Language management is the explicit and observable effort by someone or some group that has or claims authority over the participants in the domain to modify their practices or beliefs (Spolsky, 2009) This may include, for instance, government policy on which languages will be taught in schools and so will influence language choices and may lead to modification of beliefs and practices. However, Spolsky (2009) cautions that management will not automatically be successful, particularly when it comes into conflict with beliefs or practices.

Concentrating on the language management aspects of Spolsky's model with an emphasis on education policy. Shohamy (2006) argues it is through the overt mechanisms of education policy that observation explicitly attempts to turn language ideologies into language practices. However, before turning specifically to language education policy it may be helpful to outline the linguistic context in which these policies take place. One significant change in English language education was the transformation, in policy at least, of the passive classrooms into learner-centered classes. Individual differences among students and the development of thinking processes were also taken into account in English teaching. This change has resulted

in the search and implementation of teaching practices that adhere to learner-centeredness principles, develop learners' ability in intercultural communication contexts and promote lifelong learning (Darasawang, 2007).

Linked to this, Communicative Language Teaching (CLT) gained more prominent status in ELT and teachers widely implement this approach in teaching as they thought its principles corresponded to the notion of learner-centredness and could encourage learners' autonomy and independent learning (Darasawang, 2007). In teaching practices, students were encouraged to use the language meaningfully in various social situations through a variety of classroom activities enabling students to use the language for meaningful communication.

In higher education, some teachers shifted their teaching attention to adopt task-based syllabi which emphasize learner-centeredness and enable students learning progress through completing a series of tasks throughout the courses (McDonough, & Chaikitmongkol, 2007). It was hoped that involvement in performing the tasks would encourage students to become independent learners and to achieve real-world needs.

Focusing on higher education the Commission of Higher Education announced a policy to upgrade English language standards in higher education in April 2016. The policy demands each university to improve the English language proficiency levels of students by focusing on three main areas: the university's policy on English language, ELT practices, and assessment of students' English language proficiency.

Each university decides on its policy to raise the English language standards of students and sets its benchmark of English language proficiency that students are expected to achieve. The university graduates should be well equipped with academic and professional knowledge and a 'working knowledge of English language for communication in context.

Each institution may need to revise its English language teaching practices to improve the English language proficiency levels; Extra-curricular activities, language learning resources, and language learning environment should be offered by the university in order to facilitate students' autonomous learning of English language.

Each student is required to take English language examinations to assess their levels of English language proficiency. Each university may select one of the

international standar Lavankura, 2013dized tests available or may develop its testing systems corresponding to the Common European Framework of Reference (CEFR) or other standards to determine the levels of proficiency of each student. The test result may be informed to the students by issuing a certificate or recording it in the university transcript.

2.6 Importance of English in Thai Universities

The global trends of increased competition and the involvement of the market in higher education have gradually come to affect Thai higher education (Ministry of University Affairs, 2003). Being motivated and supported by international development organizations, the internationalization policy initially appeared in Thailand's first 15-year long-range plan for higher education (1990-2004), followed by the national seminar on "The Internationalization of Thai Higher Education" held in 1991 (Lavankura, 2013)

Reasons for adopting internationalization stem from both external and domestic forces would be making sense. Demands for market liberalization, the impact of interdependence, advanced communication, technological services, and increased international labor mobility are inescapable and play a part in explaining why a country should change to become more international (Knight, 2008b). However, there is room for officials at the national level to either resist or support such growing interference from outside. Nation-states with different "substantive settings" and "positions in the international system" will have diverse perceptions and interests regarding internationalization, which will lead to different reasons for adopting the policy (Jowi, 2009).

The primary rationales for internationalization have been grouped into four main types: social/cultural, political, academic, and economic (Jowi, 2009). Later, new rationales emerged, which are both crosscutting and yet clearly separable at both national and institutional levels. Examples of these emerging rationales at the national level are human resources development, commercial trade, and social/cultural development. The rationales at the institutional level involve international branding and profile, income generation, and knowledge production (Knight, 2008b). After all,

as we know, the rationales driving internationalization differ greatly from time to time, from institution to institution, and from country to country (Knight, 2008b).

For the year 2010, Thailand hosted 20,155 international students at 103 higher education institutions (Office of the Higher Education Commission, 2011). The current scheme of the government is to offer more scholarships for overseas students. At the moment, about 15.96% of the international students in Thailand receive Thai and overseas organizations' scholarships for their studies (Office of the Higher Education Commission, 2011). At the same time, support is being given to Thai students who wish to further their studies abroad, as shown by the Ministry of Education's project of "one district, one scholarship," allocating a budget of 420,036,800 Baht for the 7-year project in the years 2012-2019 (Ministry of Education, 2012). The above policies and projects reflect the attempt of the government to further encourage the internationalization of higher education.

In this plan, internationalization has not become less significant, but it is being interpreted more subtly when compared to the first plan formulated in 1990. The rapid expansion of Thai higher education over the past two decades has resulted in increased numbers of both public and private universities, reaching 79 and 71, respectively, together with 19 community (Office of the Higher Education Commission, 2011). This expansion has put a significant strain on the quality of education. Such unbalanced growth has raised awareness of quality issues. In response to this, the Office for National Education Standards and Quality Assessment (ONESQA) was set up in 2000. The government has realized that domestic quality standards would be a key element, leading to a more stable path of internationalization while keeping up with the international standards.

One of the universities' efforts in moving toward the internationalization of higher education in Thailand during the past two decades was seen in the development of various "international programs," using English as a medium of instruction, sometimes in partnership with a foreign university (Ministry of University Affairs, 1990). These international programs illustrate the internationalization of higher education in terms of the teaching functions of the institution (Knight, 1997). In Thailand, this type of program became popular by the early 1990s, at about the

same time at which the internationalization policy was put into the higher education plan.

In the Thai context, the extra demand for international programs is based on a growing need for graduates competent in English language, in addition to being competent in their discipline. The prioritization of English language skills can be explained by the country's inferior "position in the international system" and its consequent need to embrace the world's official academic and business language (Horie, 2002).

Proficiency in the English language became one of the country's practical needs because of the growing foreign investment in the country. Many Thai students came to international programs with the expectation that they would better their English proficiency, which would give them access to more and better job opportunities. The establishment of international programs serves this purpose. The major difference between international programs in Thailand and Western countries: Thailand focuses on teaching the English language, whereas the Western countries emphasize the content of the curriculum (Wilawan, 1999).

2.7 English Medium Instruction

As higher education institutions around the world are seeking to internationalize, the teaching of academic subjects through the medium of English in non-native English-speaking countries has grown tremendously. English-medium instruction (EMI) is becoming increasingly ubiquitous, with nations in Asia, Africa, and Latin America reporting growth in, and government policies to promote, EMI in higher education (Dearden, 2014). EMI can help prepare domestic students for the global workforce and attract international students and scholars, which in turn raise the profile of HEIs in international ranking schemes and increase the global visibility of national education systems (Shimmi, 2014).

EMI aims to develop students' English professional capability, increase their knowledge of different academic disciplines, and prepare them to take part in the international community (Wanphet & Tantawy, 2018). Curricula using English as a

medium of instruction for basic and advanced courses to improve students' academic English proficiency (Taguchi, 2014).

In this context, English is considered an instrument rather than a subject. In other words, mastery of the English language is regarded as a by-product of attaining academic knowledge in content courses (Alfehaid, 2018). As a result, all the international colleges, as well as international programs of faculties in higher education institutions in Thailand, are using EMI as an internationalization strategy to implement their course curriculum. According to Taguch (2014), EMI is used in many other countries as an internationalization strategy in higher education.

EMI can be defined in different contexts that have different motivations and goals for introducing EMI (Hamid et al, 2013). Much of the research concerning EMI is conducted focuses on content learning outcomes and linguistic impacts of EMI (Dimova, Hultgren, & Jensen, 2015). Yet, the expressed goal of EMI many national contexts is much wider in scope, centering on the internationalization of education and human capital development (Hamid et al, 2013). In these contexts, the challenges facing HEIs implementing EMI are broader, incorporating such things as employing teaching faculty for EMI programs and expanding administration and support services to cater to an increasingly heterogeneous student body.

The notion of EMI is defined as an educational system where content is taught through English in contexts where English is not used as the primary, first or official language. It has been noted that internationalization and EMI in the twenty-first century are inextricably intertwined, as universities turn to Englishization to attain internationalization (Kirkpatrick, 2012).

EMI can be defined as the use of the English language to teach academic subjects (other than English language itself) in countries or jurisdictions where the first language of the majority of the population is not English (Macaro, 2018).

2.7.1 EMI in Western Context

Maiworm & Wächter (2020) study was one of the first to systematically track the expansion of English-taught programs (ETPs) in Europe, with two large-scale surveys of 1,558 higher education institutions (HEI) in 19 European countries. The number of HEIs that responded was 821 and only 725 ETPs were identified, representing between 2% and 4% of all programs offered, highlighting

EMI as a rare phenomenon. A follow-up survey in 2007 of 2,218 HEIs in 27 European countries identified 2,389 ETPs, a 229% increase (Wächter, & Maiworm, 2018). In both surveys, ETP programs were largely concentrated in the Netherlands and the Nordic countries. An interesting difference to note is that the second study excluded ETPs taught partly in English.

In 2012 Brenn-White & van Rest also tracked the growth of ETPs in Europe at the masters level drawing largely from the master's Portal database. In 2002 the number of ETPs was 560; this more than doubled to 1,500 by 2008, rose again to 3,543 in July 2010, and rose again by 158 to 3,701 within 15 months (by October 2011). The complexity of how an ETP is defined is again evident; Brenn-White & van Rest note that within this same period of two years programs taught through 'English and at least one other language' had increased by 963.

The most recent comprehensive map and analysis of the provision of ETPs in Anglophone countries in Europe were completed by Wächter & Maiworm hter & in 2014. Again, a large-scale survey was conducted in 28 European countries, in 2,637 HEIs that held an 'ERASMUS Charter' in the academic year 2012/2013 (Wachter & Maiworm, 2014). Results illustrated a clear increase from 2,389 ETPs in 2007 to a massive 8,089 ETPs in 2014, a 239% growth in ETPs over the last seven years.

Once again, the Netherlands was found to be the leading country offering the highest number of ETPs at 1,078 programs. This was closely followed by Germany (1,030 programs), then Sweden (882 programs), France (499 programs), and Denmark (494 programs). However, Dimova, Hultgren & Jensen (2015) warn of several problems associated with estimating EMI growth in Europe. For example, they point out that masters programs have grown in number and that estimates of the EMI courses offered to conceal a wide variety and complexity of linguistic practices.

2.7.2 EMI in Asia Context

Many countries in Asia and the Middle East have started using EMI in HE (Nunan, 2003) with similar growth patterns to Europe. In countries such as China and Japan, governments have been actively promoting the use of EMI in both private and public (state-funded) universities. In 2001 the Ministry of Education (MOE) in China stipulated as one of its 12 key guidelines that within three years, EMI should be

used for 5–10% of undergraduate specialization courses at top-tier universities. In order to safeguard the implementation of this new policy, the MOE included the criterion of the number of EMI programs offered by a HEI, as part of HE assessment (Hu & McKay, 2012). (Wu et al, 2010) surveyed 135 HEIs across China. Findings showed that by 2006, 132 of these HEIs offered on average 44 EMI programs per institution.

An even faster EMI growth rate has been witnessed in Japan over the past seven years. In 2009 the Japanese Ministry of Education, Culture, Sports, Science, and Technology (MEXT) launched the 'Global 30 Project' whose main aim was to promote degree programs offered through the medium of English in 30 Japanese universities, to attract 300,000 international students to study in Japan by 2020 (G30 2016). By May 2013, only 13 universities had implemented this policy and the number of international students had only reached 135,519 (Project Atlas 2016). MEXT then re-evaluated the project and re-launched it in 2014 under the name 'Top Global University Project' (TGU 2016). The new project is promoted as a 'funding scheme that aims to enhance the international compatibility and competitiveness of higher education in Japan' (TGU 2016).

The aims of the project were broadened, and funding was expanded to 37 universities across Japan. As part of this project, full/partial EMI degree programs were launched across the nation. This, however, is only an account of formally introducing EMI in Japan. There are 86 national universities (universities established by the government but operated autonomously), 95 public universities (universities established, managed, and funded by the government), and 597 private universities (universities neither funded nor operated by the government) in Japan. As of 2006, MEXT (2006) reported that 227 universities across Japan were offering one or more full credit-bearing academic subject courses through EMI.

In Taiwan, in 2000, a small number of elite public universities began offering business degrees in English. By 2002, a private university, Yuan Ze University, offered one-quarter of its courses in English. Then by 2005, the prestigious National Taiwan University (NTU) had changed its regulations such that if any international students were taking courses, English had to be used as the MOI. This pushed course numbers offered through English at NTU up to 420 by the end of

the academic year. In the same year, the National Cheng Kung University (NCKU) offered 205 EMI courses. By 2013, EMI had grown to 29 Taiwanese universities offering 92 different full-degree programs in English. The striking difference between Taiwan and countries like China or Japan is that Taiwanese universities appear to have initiated the implementation of EMI without having the policy imposed on them top-down by the Taiwanese MOE (Yang, 2015).

Another example of the rapid growth of EMI is evident in Korea. Cho (2012) states that even though attempts were made from the mid-2000s to expand EMI programs, it was not until 2006 that true expansion started to take root across the country when President Suh Nampyo, newly inaugurated president of the Korea Advanced Institute of Science and Technology (KAIST), announced his 'Globalization Project'. Suh's vision was to increase EMI programs by 10% every year until all classes at all levels (Bachelor, Masters, Doctoral) were taught entirely through English by 2010. The number of EMI classes then rose steeply in Korean HEIs; of the 410,000 courses offered, 9,000 courses (approximately 2.2%) were offered in English (Byun et al, 2011). See also Kim, Kweon & Kim (2017). Not all Asian countries have experienced this growth and EMI is not without resistance.

In Bangladesh, for example, Bangla has been the national language since 1972, is spoken by 98% of the population, and is used in public education, government administration, and the judiciary. English, introduced during British colonial rule, is the major second language and has been used exclusively in the private sector of Bangladeshi HE since the early 1990s. It is still, however, not permitted as the MOI in public universities (Hamid & Jahan, 2015). This situation reflects the diverse contexts that EMI is operating in: 'outer circle countries', such as Bangladesh, India, and Nigeria, and 'expanding circle countries', such as China and Turkey (Kachru, 1992).

2.7.3 EMI in China

The Chinese higher education sector has undergone extensive internationalization in the past decades, which has laid the foundation for the rapid growth of English-taught courses (Z. Zhang, 2018). Internationalization as a concept in the higher education literature has been evasive, being equated with Englishization in East Asia(Galloway & Ruegg, 2020). Inherent aspects of the internationalization

reform agenda are efforts to improve mobility, broaden experiences, standardize qualifications, as well as to increase English medium instruction (EMI).

In governmental policies, EMI programs are heavily linked to the aims of achieving internationalization in Chinese higher education (Hu et al, 2014). Starting in 2001, the Chinese Ministry of Education (MOE) issued a series of policies to encourage universities to develop EMI programs or "bilingual education" (Shuangyu jiaoxue, 双语教学), as a means to facilitate the internationalization of university curriculum, teaching, and learning (e.g., Ministry of Education, 2001, 2007). Although Chinese universities-initiated EMI provisions later than many of their European counterparts (Hu et al, 2014), the expansion of EMI provisions in Chinese higher education has been swift, propelled by top-down internationalization strategies that are backed by policy and financial support (Z. Zhang, 2018). Even as early as 2006, the effect of these bilingual education policies was clear, with evidence that a majority of top Chinese universities had already developed EMI courses.

The development and implementation of English medium programs have been impacted by a wide range of educational, contextual, and resource factors (e.g., students' English proficiency, teachers' command of English as an instructional medium, and resources available). As a result, the English medium programs that are currently implemented vary in program goals, the proportions of time allocated for the two languages on the curriculum and in the classroom, the school subjects chosen for English medium instruction, and the grade levels at which English medium programs are run. However, a few general considerations are discernable in the creation of English medium programs. These considerations concern the relative difficulty, complexity, and potential consequences for teachers to teach, and students to learn, a school subject through the medium of English.

2.7.4 EMI in South Korea

English-medium instruction (EMI) in Korean higher education has dramatically increased since the Korean government began providing financial support for universities, adopting an EMI policy in 2004 (Byun et al, 2011). By the year 2011, 30% of all classes offered by universities in the Seoul metropolitan area and 10% of those in other areas were conducted in English (Kim, 2011). Through

EMI, higher education students can enhance their English skills while acquiring subject knowledge by being exposed to English over relatively long 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. Korean university students have recognized these benefits and taken advantage of EMI opportunities.

Universities have taken various measures to facilitate the expansion of EMI classes. Korea University, for instance, has introduced a requirement that students must take 5–10 courses in a foreign language—more precisely, in English—before graduation. Also, all newly hired professors must teach all their courses in a foreign language or English for three to five years after employment. In other words, to expand EMI, universities are hiring scholars who are capable of teaching in English and requiring students to take EMI classes. Universities have also provided financial incentives and allowed a reduction of teaching hours to the professors who offer EMI (Kim, 2011).

Engineering schools have led the trend in Korean higher education possibly due to the field's dependency on the English language for knowledge acquisition and communication with researchers and engineers around the world. In 2006, Korea Advanced Institute of Science and Technology (KAIST), the most reputed engineering school in Korea, adopted an all-out EMI policy that dictated all courses be conducted in English. The school's move generated wide media coverage and was highly influential in promoting EMI in Korean higher education. By 2010, Pohang University of Science and Technology (POSTECH) was offering 88% of undergraduate classes and 95% of graduate classes in English (Cho, 2012). Two relatively new engineering schools, Gwangju Institute of Science and Technology (GIST) and Ulsan National Institute of Science and Technology (UNIST) have offered all their classes in English since their establishment in 1992 and 2009, respectively (Yu, 2011). Both GIST and UNIST are now taking further steps by declaring the adoption of a campus-wide policy of English as an official language (Chung & Choi, 2016).

2.7.5 EMI in Japan

Recent initiatives of Japan's Ministry of Education, Culture, Sports, Science, and Technology (MEXT) aim to increase the number of English-medium instructed courses at Japanese universities and to internationalize higher education in Japan's current policy related to the "Top Global University Project" (TGUP). Preliminarily titled the Super Global University Project, the TGUP is a large-investment initiative designed to "enhance the international compatibility and competitiveness of higher education in Japan" and to provide "prioritized support for the world-class and innovative universities that lead the internationalization of Japanese universities"(MEXT (Ministry of Education, Culture, Sports, 2014).

Universities had interpreted the TGUP policy following the top-down policy delivered from MEXT. Funds from TGUP were being implemented to increase the quality of research at the university and to create a more global university environment, through the internationalization of programs, faculty, the student body, and student experiences. While only some of the participating universities explicitly discussed the role of English in their internationalization plans, indicating a different positioning of English as the stimulus for the previous policy, many universities highlighted the development of programs taught in English.

Traditionally, transitioning into EMI universities, one crucial factor to consider is students' prior experience of learning through English, given that the challenges posed by the school-university transition vary according to the background (Galloway & Ruegg, 2020). (Evan & Morrison, 2016) found that the most significant factor influencing adjustment to EMI universities is the high school teaching medium. In their study, students from the Chinese-medium high school system expressed a considerably more onerous induction into EMI than their counterparts from EMI high schools. The context of Japan is vastly different from Hong Kong in that, only a very small proportion of high schools in Japan offer full EMI at a high school level (MEXT (Ministry of Education, Culture, Sports, 2018). Within this context, the majority of students do not even learn English through English, and thus the transition for these students to learn content through English may be all the more difficult, having had no experience with instructional content in English previously.

2.7.6 EMI in Vietnam

The Strategy for Education Development for Vietnam 2011–2020 sees internationalization as one of the eight crucial tools for reform of the nation's higher education system. The Vietnamese government has promoted English medium instruction (EMI) in many universities, especially across the principal cities Hà Nội and Hồ Chí Minh. As one of the fundamental initiatives for enhancing the quality of Vietnamese higher education, overhauling the outdated curriculum, and lifting the ranking of Vietnamese universities, internationalization is often synonymous with the use of EMI and the import of foreign curricula (Duong & Chua, 2016).

However, if internationalization is narrowly framed around the use of EMI and borrowing of foreign programs, Vietnam will miss opportunities to draw on internationalization as a powerful force to reform many aspects of university operation. EMI programs and the imported curricula embedded in these programs assist students to some extent in the development of English competence and provide them with updated knowledge, thereby enhancing their competitiveness in globalized labor markets.

At the heart of the internationalization agenda in Vietnam is the promotion of English medium of instruction (Nguyen et al, 2016). EMI as a modality to facilitate the key objectives outlined above—internationalization of the curriculum, enhanced international collaboration in program development and delivery and research, strengthened staff and student mobility, and improved institutional reputation and ranking. Therefore EMI has become both mechanism and marker of education, development, and integration goals of the government and higher education institutions (HEIs). For students, EMI programs symbolize a form of global linguistic capital and global cultural capital (Kim, 2011) that students aspire to acquire in order to enhance their career prospects and employability in the labor market of Vietnam's fast-developing economy. However, while it is likely that those graduating from EMI programs at domestic universities possess a marker of distinction in the labor market, the privilege associated with EMI programs also means that programs delivered in the Vietnamese national language are seen to have a lower status.

2.7.7 EMI in Thailand

English has become a global language and teaching English as a foreign language (EFL) has increasingly become a universal demand. As reported by (Macaro et al, 2018), English as a medium of instruction has become a growing global phenomenon, particularly in higher education. Higher education institutions are now keen to offer both undergraduate and postgraduate programs through the medium of English (Earls, 2016). The reasons for this vary are context-dependent. They include a perceived need to internalize the higher education institution (Knight, 2013) so that it is prestigious enough to attract foreign students due to falling enrollment numbers of local students through changing demographics, national cuts in higher education investment, the need for the public sector to compete with the private sector, and the status of English as an international language (EIL), especially in the domain of research publications (Macaro et al, 2018).

Notwithstanding the above-mentioned, English has been formally adopted as an official language and the medium of communication among the participating countries of the Association of Southeast Asian Nations (ASEAN) to foster collaborative activities toward accomplishing quality education in the region (Luanganggoon et al, 2018). Therefore, using EMI in Thai higher education institutions is a key mechanism to equip graduates with professional skills and English language proficiency (Phantharakphong, Sudathip & Tang, 2019). This enables Thai higher education to produce more competent graduates who are competitive in the ASEAN Economic Community and wider international market (Bunwirat, 2017).

Many indicators show that Thailand is so far down the ladder of English proficiency even though Thai educational policy has emphasized the importance of English language by employing native speakers to teach English throughout Thailand (Luanganggoon, 2020). Moreover, teaching English as a foreign language or second language (L2) has become an important issue and is very challenging (Mantasiah, 2020). The development of English as EMI is of great interest to language policy researchers in an era of globalization and internationalization. Despite the recognition of some implementation problems and constraints, EMI has been widely introduced into various non-native English-speaking

countries including Thailand (Luanganggoon, 2020). English has evolved from being a foreign language or L2 to the language of academic disciplines in tertiary education (Wanphet & Tantawy, 2018). A major outcome of international colleges particularly in Thailand in terms of internationalization is the adaptation of English as the EMI for all the study programs. Furthermore, English-medium domination is deeply rooted in social, economic, and technological development as well as in international communication due to the results of globalization noticed in more English medium programs in higher education institutions (Doiz & Lasagabaster, 2013). This is further supported by Chapple (2015) who investigated the relationship between the teaching quality of the EMI program and the learning barriers. Chapple found that understanding the lecturers' perspectives would contribute to the enhancement of the teaching practices and effectiveness of EMI. Using EMI in a university study program is a method to prepare an English-proficient labor force to help compete in the global market as emphasized by Troudi (2009).

Teaching English as a foreign language is always a challenging task. When it comes to the places where English serves a very limited, it becomes more crucial and painstaking to teach and learn. The aim of EMI in this research is to develop students' English professional capability, increase their knowledge of different academic disciplines, and prepare them to take part in the international community (Wanphet & Tantawy, 2018). In this context, English is considered an instrument rather than a subject. In other words, mastery of English language is regarded as a by-product of attaining academic knowledge in content courses (Alfehaid, 2018). As a result, all the international colleges, as well as international programs of faculties in higher education institutions in Thailand, are using EMI as an internationalization strategy to implement their course curriculum.

According to Taguchi (2014), EMI is used in many other countries as an internationalization strategy in higher education. Lecturers have experienced great difficulty in making students understand the knowledge of the teaching content if English language is their L2 (William Dharma Raja & Selvi, 2011). This is because L2 learners require conscious effort to learn it and the exposure to the English language is limited. This is a different case of learning their first language (L1) or mother tongue whereby they learn it easily due to the favorable environment and the

great amount of exposure to their L1 (Phantharakphong, Sudathip & Tang, 2019). Choomthong (2014) found that Thai students are less proficient in English compared to other ASEAN member countries. Therefore, Thailand's higher education institution, in particular, is considered the main mechanism to equip students with not only sufficient professional skills but also higher English language proficiency (Bunwirat, 2017).

Currently, Thai people continue to rush to international programs which use EMI to sharpen their English competence. However, criticisms continue to arise as the teaching and learning of English in Thailand's basic education has not been able to provide students with an adequate level of proficiency to speak and perform satisfactorily in international tests (Dumrongkiat, 2016). Subsequently, a major outcome of Thailand International College is to adopt English as the EMI for all the study programs. For instance, lecturers of all the international colleges in Thailand are either Thai or foreigners who can use English for instruction and some of them are native speakers of English.

According to Pennee Kantavong's (2015) research on the topic of EMI for subject courses in tertiary education, she mentioned that Khon Kaen University did try to enhance students' English skills as well by assigning lecturers that they should prepare at least one subject per semester using English as a tool of instruction or so-called EMI. The research is to investigate proper approaches to develop students' English capacity and to increase students' satisfaction with EMI. For the instructional design, it is combined from the CRIC (Co-operative Integrated reading and Composition) and the PQ4R (Preview, Question, Read, Recite, Review and Reflect). From the finding, 80% of students are satisfied to study through EMI while the rest 20% needed help with more comprehension. From various learning plans to develop students' English skills, it is found that the cooperative learning model is the most effective one since students can relieve their tension to use English.

The impact of English as seen in the international college context is a rapidly growing tendency for English to be adopted as the EMI, even when most of the population speaks Thai as their local language. The rapid spread of EMI does not imply immediate success but is fraught with difficulties and challenges. Along with the implementation of educational policies of Thailand's international college that call

for EMI, there is a belief that language learning will take place during content delivery in a second language (Rogier, 2012).

Since this research addresses the use of EMI within the international programs at Thailand international college, the adoption of English as a language for teaching academic content was, in essence, prompted by instrumental motivations. After several years of EMI implementation, this timely research sought to consider the effectiveness of this instructional approach through the learning and teaching experiences of students and lecturers. It is hoped that this research will contribute to the knowledge of the effects of EMI in higher education on language proficiency, particularly in contexts where EMI is initiated in Thailand where the native language is not English. It is anticipated that the research results will lead to awareness and improved practices among lecturers in EMI environments that will be beneficial to the students in terms of English language learning in contexts where EMI aims to improve language proficiency.

2.8 Advantages of EMI

Concerning EMI policy implementation, much of the research takes a binary approach by focusing generally on negatives (constraints, issues, challenges, threats, problems, etc.), some balanced with the positives (opportunities, solutions, etc.). It seems to be part of a process of critiquing and problematizing this growing area of research. The research indicates that there are several advantages of EMI implementation, they are as follows:

a. Cultivating talents/students

With EMI courses, universities intended to improve students' English language level, academic capability, international communication and co-operation capacity, creativity, global vision and awareness, and competitiveness in the globalized society'. University noted that with the introduction and development of EMI courses, the university aims to improve its global attractiveness and its capacity to accept international students. A major driving force for the creation of EMI courses at many of the case universities is the internationalization agenda. In the language-

specialist universities, there was recognition that teaching disciplinary content in English was increasingly more valued with the decrease in the value of the English major.

EMI teachers commented that an English major these days was almost like 'not having a major' as EMI programs allowed students to develop their language knowledge in tandem with disciplinary knowledge, making them more competitive in the job market. In the transnational university context, EMI programs gave their graduates an advantage when applying for overseas graduate studies. EMI was to increase the intercultural competencies of local students as this is a very important reason.

b. Globalization and internationalization

Globalization/internationalization was another heavily coded aim in the policy. Universities stated that EMI course development represented a significant response to the challenges of globalization. Alongside EMI program development, universities intend to improve their level of internationalization in teaching staff, curricula, and the cultivation of research talent. EMI courses are promoted as important to improving the competitiveness and international impact of the university. The university needs to 'integrate the track' with 'advanced teaching notions and modes in the world'.

This indicates a notion among universities that EMI courses are more advanced than current medium teaching models. In response to the importance of EMI courses fostering partnerships with institutions in other countries, items related to the use of EMI to attract international academic staff and foreign students.

c. Quality of teaching and curricula

EMI courses are able to improve the teaching quality of EMI courses and general curricula, further develop the curriculum reforms at the university, and enhance the teaching environment. The content in the EMI courses is 'simplified' or 'reduced' compared to local language instruction. Thus, the efficacy of EMI by designing curriculum and teaching quality becomes the key to achieving the goal of being an internationalization university.

    d. University Development

Building EMI courses were part of the university's strategic plan, particularly contributing to the building of world-class universities. EMI in connection to larger developments in HE to develop world-class institutions. Having EMI will enable faculties to make connections between internationalization policies and the global competitiveness of the university. Hence, the driving force for EMI creation was to sharpen the profile of the university compared to other universities in the nation.

2.9 Disadvantages of EMI

Concerning the disadvantages of EMI, Coleman (2006) and Demircan (2006) strongly argue that EMI plays a debilitating role in the development of the native language; Selvi (2014) notes that EMI does not affect native language negatively. The reason for the variety of ideas concerning the native language might be to do with many causes ranging from the lecturer, and instructional methodologies to even the personality of the learners.

Another noteworthy finding on the disadvantages is that EMI affects achievements negatively. This failure can be associated with incompetency in the language, which results in not being able to comprehend and internalize the subject matter to a full extent. This is one of the most common disadvantages mentioned in the literature (Macaro Akincioglu, 2018). This is most probably because of a lack of proficiency in the language. This result is similar to Atik (2010), and Lasagabaster (2016) in the sense that EMI decreases the comprehension skills of the students, thereby leading to failure problems in academic studies. The perspective of ELT students on EMI that influences academic achievements negatively becomes an interesting point. It is argued that even language students need supplementary courses for English language proficiency to solidify EMI.

Also, drawing on the substantial body of literature about EMI in Europe and relatively nascent findings from Asia, Bradford (2013) elaborated on three categories of challenges to cause the disadvantage that may affect institutions adopting EMI.

These challenges are important to consider when discussing the academic quality of teaching content in English (Choudaha & De Wit, 2014).

The first is a linguistic challenge which involves the difficulties experienced when lecturers and/or students are working in a non-native language. They include such things as students' inability to take notes from academic texts (Hellekjær, 2010) and lecturers' reduced ability to use accessible language in the classroom (Tange, 2010). These challenges can result in reduced program quality and loss of confidence in faculty members' instructional abilities. They are perhaps the most apparent type of challenge and are the focus of numerous discussions, where researchers and educators are, for the most part, concerned with the dual goals of content and language acquisition in the EMI classroom.

The second is a cultural challenge that is related to diverse EMI student and teacher populations that have different academic and social-cultural norms. They include such things as difficulties arising from differences in contextual background knowledge (Tange, 2010), learning traditions, (Eaves, 2011), and intercultural competencies (Kuwamura, 2019). They can result in a loss of cultural texture in lessons, student resistance to tasks, and an absence of the inclusive practices required in the internationalized classroom. In addition, the English language, even if only used as a tool for communication, is not value-free and often veils American academic discourse (Hashimoto & Lee, 2011). Acceptance of, or resistance to, this discourse can serve to promote or impede the successful adoption of EMI (Wong & Wu, 2011).

Also, structural challenges are those related to the administration and management of EMI. The recruitment of teaching and administrative staff, assessment policies for admission and graduation, and issues relating to the acceptance of and buy-in for EMI programs fall into this category (Tella, Räsänen & Vähäpassi, 1999). Structural challenges can result in reduced program coherence because of an insufficient number of EMI courses, support staff unable to work with diverse populations, EMI students without the academic competencies required to study in English, and program graduates lacking both content and language proficiency—a phenomenon that (Hamid et al, 2013) have termed a double loss for EMI.

2.10 Previous studies of EMI in EFL context

Despite the need for both language and content instruction in EFL settings, institutions and ministries of education around the world are creating EMI courses and programs. Throughout Asia, EMI is a recent development driven by popular demand rather than empirical research (Byun et al, 2011). There is limited research on whether EMI is an effective method of content instruction in foreign language settings where both teachers and students are non-native English speakers (NNES), few comparative studies of student content knowledge gained in EMI versus own language courses, and a review of the literature found no experimental research investigating the effectiveness of English language development through EMI compared to language and content courses separately (Byun et al, 2011). The lack of research supporting its effectiveness, or standards for ensuring effective content and language learning, has raised many questions.

A recent survey of British Council teachers in 55 countries found that EMI is rapidly spreading worldwide with official government support, even though many countries lack the educational infrastructure to successfully support such a model (Dearden, 2014). The same study found a shortage of English proficient teachers, a lack of organizational guidelines or pedagogical models, and a lack of professional development or preparation programs for teaching EMI. Private universities and secondary schools are developing the majority of EMI programs, and most of these policies have been developed only in the last ten years.

Similarly, Green et al (2012) interviewed academicians and higher education officials at universities on five continents and found that the rapid expansion of EMI courses and programs has created institutional and societal challenges. For example, countries with a recent investment in English education, such as Rwanda or China, struggle with insufficient foundational English for students and teachers, and a lack of qualified teachers or funds to recruit foreign teachers. In countries with a long history of English education, such as Qatar or the Netherlands, there is public concern about losing native language skills and culture. In every country, there were questions regarding the quality of content instruction provided in English rather than the native language.

Many EMI instructors are required to teach in English regardless of their actual or self-assessed English proficiency levels, which can impact the quality of their instruction and the ability to deliver challenging content (Dearden, 2014). In Asia, for example, many EMI teachers have content expertise but are NNES with limited English proficiency, confidence, and/or experience teaching courses in English. For example, Vietnam's recent government initiative mandating that 20% of university students be taught in EMI in certain subjects by 2015 has proven difficult, as both undergraduate students and instructors have low English proficiency. Even when academically qualified lecturers appear proficient, they may not be able to lecture and interact at an appropriate level with the students (Le, 2012).

In Japan, where over one-third of the universities require some content classes in English, most EMI classes are staffed by Japanese content teachers who may have foreign language degrees but little-or-no training in second language acquisition, or experience teaching in English (Brown, 2016). This situation raises questions about what teaching English proficiency level is needed for NNES to teach content effectively in English. This is outside the scope of this study.

Also, there is interesting research conducted by A. G. Tamtam et al (2012) which aimed to compare the implementation of EMI in the areas of Europe, Asia, and Africa continent. This paper presents an investigation, which was carried out from the available literature to discuss the possible ways of implementing EMI in engineering education in Libya. This paper also focuses on the possibilities of implementing EMI in higher education systems in non-English countries in Europe, Asia, and Africa, problems faced by these countries, and suggested solutions. The study found that English proficiency achieved through EMI will increase the chances for graduated students to get better positions in the labor market. Most of those countries witness similar problems in course of the EMI adoption, which include: less funding, lack of qualified teaching staff, lack of student understanding and interest, and cultural opposition.

Additionally, Abbas Zare-ee & Hajazi (2017) conducted research looking up closely at university teachers' views on EMI in an Iranian Higher Education Institution. The research is to survey the attitudes of Iranian university teachers from faculties of Humanities, Science, and Engineering towards EMI, to apply EMI in

teaching, and to explore if their attitudes are affected by university rank. Interviews and questionnaires are used as research materials in the research. The result showed that despite Persian being the main language used the most, English is valued by those teachers, but they are mainly concerned about the inadequate English proficiency of students. From the interviews, the teachers' perceptions towards EMI, both for and against, are divided into several reasons: economic, academic, cultural, social, and technological issues. For academic reasons, the teachers believe that EMI can help students understand and attach to English communication and have access to up-to-date and wide resources in English. Furthermore, this opportunity also offers students and lecturers to be proficient and fluent in English and can participate in international events in the future. However, there are several academic challenges they found: inadequate English proficiency of teachers and students, are quiet and boring in the classroom due to language struggles, and insufficient teaching materials in English.

Baker & Hüttner (2019) explored the beliefs about and practices of 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.

Hengsadeekul, Koul, & Kaewkuekool (2014) quantitative study using a questionnaire explored the relationship between English language learning motivation and students' preference for EMI graduate programs in nine different academic areas. The study revealed that students were instrumentally motivated, yet integrative goals were also positive. This led the authors to conclude that higher education policies regarding EMI should consider the values and beliefs of students as potential adopters of EMI and that learning environments that strongly support integration, mastering the goals, and minimizing conditions that create language anxiety would encourage the desire to study in EMI.

As research mentioned above, it is obvious that the majority of countries implementing EMI are facing similar challenges, especially for the English proficiency of both teachers and students which is one of the most important struggles worth deeply considering and addressing. Nevertheless, it is possible to say that

implementing EMI in universities can bring great opportunities for students at the international level which is especially advantageous for their careers in the future.

2.11 Theoretical Framework of Perception on English as Medium Instruction

The framework that is suitable to the context of Thai higher education is identified through the criteria of Thai language policy, where current trends apply a significant curriculum adoption towards internationalization. Hence, the ROAD-MAPPING framework (Dafouz & Camacho-Miñano, 2016) has been chosen to measure the perception of Thai Tertiary-Level Engineering Learners and Teachers toward English as a Medium of Instruction. This framework identifies six intersecting dimensions that come into play in diverse EMI settings, namely: Roles of English (concerning other languages) (RO), Academic Disciplines (AD), (language) Management (M), Agents (A), Practices and Processes (PP), and Internationalization and Glocalization (ING).

However, a little required adaptation was applied to meet the basic perception that indicates Thai higher education learners and teachers. It is due to the need to have foundation information in order to measure comprehensively. Hence, this research applied several dimensions for indicating the perception of Thai Tertiary-Level Engineering Learners and Teachers towards English as a Medium of Instruction.

More specifically, this research used ROAD-MAPPING to delve into three concrete dimensions that are directly related to the ideological construction of teacher and learner learning experience, namely, Practices and Processes (PP), and Internationalization and Glocalization (ING). However, the practice and process dimensions were translated into courses and materials as these terms indicate operational words from academic conditions.

The first dimension, practice, and processes address the teaching and learning activities that are contingent on specific EMI realities and the types of changes, adaptations, and choices that lecturers make when delivering their subject in English as a learning language. This layer connects with lecturers' practices in EMI settings which are inextricably tied to how they view themselves as English language

teachers and as disciplinary and professional experts. Finally, Academic Disciplines (AD) are described in relation to the different literacy practices, curricular design, and assessment methods used in the university context. Such practices are likewise connected to the inherent features of a specific discipline (or set of disciplines) and shape lecturers' agency. In other words, teacher beliefs and their subsequent teaching practices 'will vary depending on the roles they adopt, their professional concerns or their disciplinary backgrounds' (Dafouz & Camacho-Miñano, 2016)

The second dimension is Internationalization and Glocalization. It describes a process of intensifying exchange between nations (or other securely internationalized organizations and agencies), most of which occurs within the public domain, while globalization describes the progressive integration of economic structures within global (but also volatile) arrangements and the homogenization (but also hybridization) of distinctive national cultures, both of which occur largely in the private domain.

Conceptually, the framework may also benefit from this interdisciplinary stance by expanding the applied linguistic perspective adopted in the results. This would support the aim of a truly holistic framework. It would be interesting and necessary to try out the viability of the framework through interdisciplinary collaboration, engaging stakeholders, such as university management and content specialists.

2.12 Summary

Higher education is becoming increasingly internationalized, and the use of English as a medium of instruction for academic content has become a commonplace in countries where English is not the native language. Hence, this section addressed several key points as notions and comparisons in order to justify the ideas of investigating the perception of Thai Tertiary-Level Engineering Learners and Teachers towards EMI. This section starts with the definition of each related variable. The perception term is used to identify the influence of language used for a certain purpose. Hence, the perception to view the meaning of English for engineering would

be precisely valuable as this English requires a specific approach, different from the general language teaching.

Therefore, the reform of English language teaching and learning in Thai higher institutions happens to apply the English proficiency requirement for admission and graduation. Also, policy demands each university to improve the English language proficiency levels of students by focusing on three main areas: the university's policy on English language, ELT practices, and assessment of students' English language proficiency. This effort was made as a response to the goal achievement to get benefits from internationalization.

In Thailand, universities are seeking to internationalize their environment. Hence, the teaching of academic subjects through English as a medium of instruction has grown tremendously. Many countries are implementing EMI which helps with internationalization policy. Implementing EMI as the new method extends the opportunity for students to cultivate their skills and network. This learning environment is hoped to level up the quality of learning. However, the adoption of EMI in higher education is not a matter of simply switching the vehicle of communication and continuing as usual. There is concern that the enthusiasm and trend for EMI lead to unrealistic expectations regarding positive outcomes and a less than vigorous deliberation of the implementation processes and potential unintended consequences involved (Macaro, 2015).

Therefore, it is important to figure out the framework that is suitable to the context of Thai higher education identified through the criteria of Thai language policy, where current trends apply a significant curriculum adoption towards internationalization. This framework namely, the ROAD-MAPPING framework (Dafouz & Camacho-Miñano, 2016) has been chosen to measure the perception of Thai Tertiary-Level Engineering Learners and Teachers towards English as a Medium of Instruction. Due to the need to have foundation information to measure comprehensively. Hence, this research applied several dimensions, they are practices and processes (PP), and internationalization and glocalization (ING). However, the practice and process dimensions were adopted to be the terms of course and materials as these terms indicate operational words from academic conditions.

CHAPTER III
RESEARCH METHODOLOGY

This chapter describes the research method, population and sample, instruments, the procedure of data collection, and data analysis. This study is a mix-research design. Also, this research was designed as an explanatory sequential mixed method. Yin (2017) further states that an exploratory study can investigate a concept or phenomenon as an initial stage of research that often leads to a more specific research design and data collection methodology for subsequent studies in the field. Explanatory designs can explore or identify questions or components in a particular phenomenon (Yin, 2017). The quantitative phase focused on concept discovery of perceptions of learners and teachers towards EMI through a survey. In the qualitative phase, the identified perception is elaborated to enrich the findings.

There were two phases conducted in collecting the data. First, the quantitative research aims to investigate the perceptions of Thai tertiary-level Engineering learners and teachers towards EMI by using a questionnaire to collect the data. Therefore, the researcher used numerical statistics to analyze it as well as using descriptive statistics to describe the result. Second, the qualitative research is used to explore in-depth perceptions of Thai tertiary-level Engineering learners and teachers towards EMI by using a semi-structured interview, and the content analysis was used to interpret the information and setting into theme conceptions

According to the two research questions, this study was carried out in two-phase. They are as follows.

Phase 1: To investigate the perceptions of Thai tertiary-level Engineering learners and teachers toward EMI

Phase 2: To explore how learners and teachers of Thai tertiary-level Engineering learners and teachers use EMI

The following figure describes the research phase, procedure, and expected outcome.
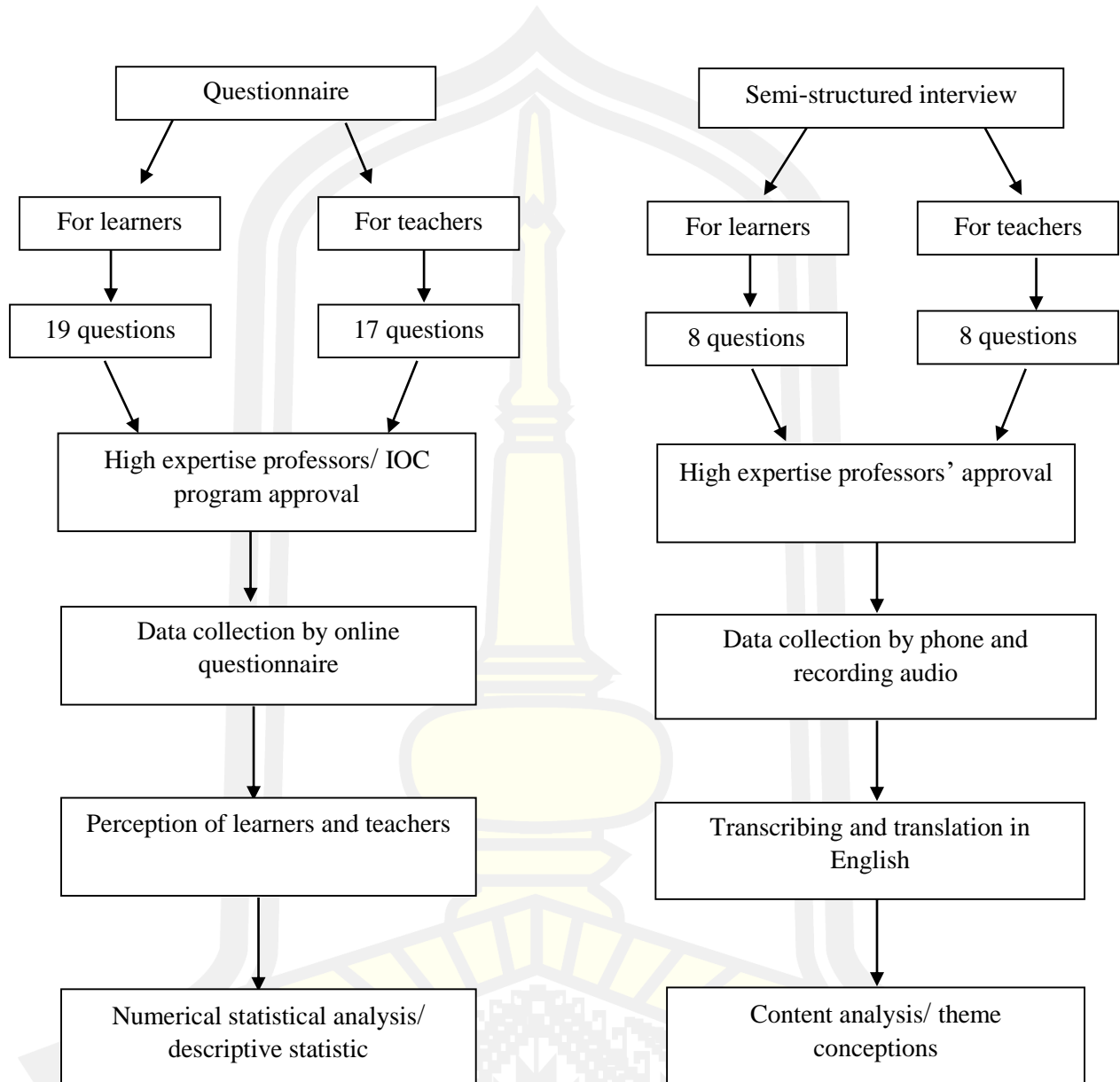
Figure 1 Research procedure

The following two phases mentioned in the research methodology are in order to answer research questions, these phases were conducted step by step and described as follows.

3.1 Phase 1: To investigate the perceptions of Thai tertiary-level engineering learners and teachers towards EMI

    3.1.1 Procedures

        a.) Studied several books, literature documents, and previous and related research to gain knowledge about the components and indicators of EMI.

        b.) Constructing the instrument: questionnaires to conduct a survey.

        c.) Collecting the data from the sample.

        d.) Analyzing the data by calculating Mean and Standard Deviation.

    3.1.2 Population and Sample

        a.) Population

The population of this study was learners and teachers who were studying and working at one of the northeastern universities in Thailand. The population was 458 Engineering learners, studying in the first to fourth year in the international program, and 65 teachers in one of the universities in the Northeast of Thailand.

        b.) Samples

Rallis and Rossman (2009) suggested that the main inquiry relies on purposive sampling in order to have a well-defined purpose when recruiting the samples for the study. To get the number of samples, Krejcie & Morgan's (1970) table was used to determine the sample size. The sample was 214 learners and 65 teachers. Therefore, this study applied a purposive sampling with the following criteria:

For the learner, they are first to fourth-year academic students who study at the Faculty of Engineering, an international program in one of the universities in the Northeast of Thailand, 2) They are the student studying in the following programs: Chemical Engineering, Logistic Engineering, Digital Media Engineering,

and Telecommunications, 3) They may or may not have traveled to the English speaking countries, 4.) They were willing to participate in this study.

For teachers, they are 65 Engineering teachers who held the Bachelor of Engineering (B. Eng.). Also, they must have at least 1year of experience in teaching and be able to use English as a primary language in the classroom and teach subjects which are Engineering courses in international programs. Moreover, all 65 teachers are purposively selected to make the number of participants more reasonable.

3.1.3 Research Instrument

a.) Questionnaire

Questionnaires are a set of systematically structured questions used by a researcher to get needed information from respondents. Questionnaires present respondents with a series of questions or statements to which they are to react either by writing out their answers or selecting from among existing answers. In this phase, the questionnaire form as the research instrument was utilized to investigate the perceptions of Thai tertiary-level Engineering learners and teachers towards EMI.

The questionnaire was developed based on the literature review and previous empirical studies related to EMI. The questionnaire was formed in two sections. The first section was respondents' demographic which consist of frequency (f), percentage (%) including Gender, Age, qualification, and learning and teaching experience. And the second section was the questions. The question measured the perception according to range from 1 to 5, the 5-scale of Likert scale. The result of the questionnaire was used as primary data for this study. Moreover, the researcher sent out the questionnaire using online platforms in order to provide convenience and suitability for today's situation. In addition, learners' and teachers' questionnaires are adapted from Fernández-Costales (2017), Zare-ee & Hajazi (2017) and Basşibek et al (2014) respectively. The reason for adopting this questionnaire is because the researcher would like to adapt the pattern of questions for both learners (Fernández-Costales, 2017), and teachers (Basşibek et al, 2014). Also, there are both similarities and differences between the previous studies and the current study. For the similarity, the studies focused on the EMI perceptions, especially on the teaching and learning, and international viewpoints. However, the difference is the study fields of participants, and the country setting. Therefore, to conduct an appropriate

questionnaire, the researchers adopted those significant points to create a questionnaire that becomes more suitable for the study context. Nevertheless, the questionnaire was conducted under Dafouz & Camacho-Miñano (2016, 2020) ROAD-MAPPING conceptual framework to categorize themes and group the questions.

3.1.4 Data Analysis

Data analysis was done by using the Statistical Package for the Social Science (SPSS) 21 for windows according to the research objectives and the process of doing research.

Descriptive statistics which included Mean and Standard Deviation (S.D) were calculated to analyze the data from the survey. As the measurement scale, the 5-point rating scale of likert scale was used for examining the perception at the following level.

5 refers to Fully Agree

4 refers to Agree

3 refers to Neither agree nor disagree

2 refers to Disagree

1 refers to Fully Disagree

To indicate the value of an item, it was needed to calculate the mean of each item classifying their levels. To know the level of proficiency would be interpreted based on the criteria (Srisa-ard. 2003). 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

1.50 refers to the perception was Very Low

3.2 Phase 2: To explore how learners and teachers of Thai tertiary-level engineering learners and teachers use UMI

3.2.1 Procedures

a.) Synthesizing information gained from studying best practices

b.) Drafting interview questions using information from phase 1

c.) Evaluating the perception by asking several teachers and students.

d.) Analyzing the gained data

3.2.2 Participants

In this phase, the researcher requested participants who have experienced studying and teaching in the EMI context. Teachers who are holding Doctoral Degree specifically those who have had a Bachelor's degree in English or related Engineering fields, have experience in teaching for at least 1 year and can use English as a primary language in the classroom, teach subjects which are Engineering courses in an international program.

3.2.3 Instrument

Qualitative interviews were constructed to find out in-depth understandings regarding the experiences of the informants who are purposively selected with the objective of this phase (Scott & Morrison, 2006). The interviews of this phase were designed as semi-structured interviews. Semi-structured interviews are guided by a set of questions that is constructed using the same wording and order of questions as specified in the interview schedule (Kumar, 2019).

A semi-structured interview is designed to explore learners' and teachers' in-depth perception of EMI in engineering class and how the learners and teachers of Thai tertiary-level Engineering use EMI by purposive sampling: the four teachers and four students from the international program were selected. The researcher will conduct a semi-structured interview by phone and request for voice recording. Moreover, the researcher will provide themes rather than fixed questions because this concept could allow participants to naturally express their views. Also, the following-up questions will be added to gain further clarification.

The main participants are 4 Engineering learners from the first to the fourth year of international programs and have at least 1 year of experience studying in English, also 4 teachers, teaching Engineering courses in the international program are selected. Moreover, all activities and processes were conducted in Thai because it will be comfortable for participants to exchange their perspectives.

3.2.4 Data Analysis

This research also obtains qualitative analysis. For qualitative data, a technique of transcription and answer was categorized into the theme to gain more depth information (Creswell, 2017).

(1) Transcription and translation process

Before data analysis, the raw data needed to be separated. Therefore, it is vital to focus on formulating data activities. In this study, qualitative raw data were spoken accounts by learners and lectures from data sources. Also, the data will be transcribed from Thai audio recordings. The spoken accounts and related content are transcribed. However, the personal statement will not transcribe. Then, listen again while reading the transcript to recheck the written text.

However, it is necessary to translate the transcript data from the native language (Thai) into English, also it is more suitable for the study program: Using Thai as the original language for the transcripts, and English is the target language in the process. After that, do the translation process and proved it by the specialized English language. The explanation of each step is described as follows.

01 Listen to audio recording	02 Transcribe data	03 Re-listen	04 Adjust Transcripts	05 Check accuracy
• Listen to audio recording for short • Replay if neccasry	• Write the exact words while listening • Consider speech from conext when speech is not clear	• Listen to the audio recording again while reading the transcripts • Recheck whether any missing words	• Read transcripts while listening to audio recordings • Add, remove, or correct based on speech from recording	• Write summaries focusing on important points and send to participants to check • Get feedback and develop on accurate contenct

Figure 2 Interview data analysis steps

(2) Content analysis and theme conception

Necessary interpretative studies led to the analysis of the interview data in this research. Necessary interpretative studies describe and attempt to interpret experience where the data analysis typically involves categorization and development of themes interpreted by the researcher (Razavieh et al., 2010).

The analysis used coding and looks for recurring themes (Razavieh et al., 2010). Codes develop from being descriptive and/or literal data to interpretative, explanatory, and abstract data, moving towards conceptual analysis (Scott & Morrison, 2006). Using the content analysis after transcribing and translating the text. Then categorize each data into a similar theme for both learners' and teachers' data.

CHAPTER IV
RESEARCH RESULT

This chapter describes the important results of perceptions of Thai tertiary-level Engineering learners and teachers towards EMI, and how does EMI is used. This chapter addresses the following research questions:

RQ 1. What are the perceptions of Thai tertiary-level Engineering learners and teachers towards EMI?

RQ 2. How do Thai tertiary-level Engineering learners and teachers use EMI?

The findings are presented as follows.

4.1 The symbols representing data analysis

4.2 Correspondence Profile: Thai tertiary-level Engineering learners.

4.3 The result of perceptions of Thai tertiary-level Engineering learners towards EMI

4.4 Correspondence Profile: Thai tertiary-level Engineering teachers.

4.5 The result of perceptions of Thai tertiary-level Engineering learners towards EMI.

4.6 The results of how Thai tertiary-level Engineering learners use EMI.

4.7 The results of how Thai tertiary-level Engineering teachers use EMI.

4.1 The symbols representing data analysis

The symbols used to represent the variable of EMI are as follows.

n	: Number of samples
f	: Frequency
$\bar{x}$	: Mean
S.D	: Standard Deviation
%	: Percentage

4.2 Correspondence Profile: Thai tertiary-level engineering learners

There were 214 learners, studying in an international program, in the Faculty of Engineering in one of the Northeastern Universities, Thailand. The following table details the profile of the respondents.

Table 1 Analysis of Respondents' Profile

Items	Engineering learners (n = 214)	
	f	%
Programs		
a) Chemical Engineering	38	17.8
b) Logistic Engineering	106	49.5
c) Digital Media Engineering	40	18.7
d) Telecommunication	30	14
Total	**214**	**100.0**
Year		
a) 1st year	15	7.0
b) 2nd year	70	32.7
c) 3rd year	72	33.6
d) 4th year	57	26.6
Total	**214**	**100.0**
Gender		
a) male	48	22.4
b) female	147	68.7
c) LGBTQ	6	2.8
d) N/A	13	6.1
Total	**214**	**100.0**
Studying English Experience		
a) Less than 5 years	24	11.2
b) 5-10 years	25	11.7
c) 10-15 years	54	25.2
d) More than 15 years	111	51.9
Total	**214**	**100**
Experience in English native country		
a) Yes	51	23.8
b) No	163	76.2
Total	**214**	**100.0**

As can be seen from table 1 above, there are 214 participants, studying in an international program, in the Faculty of Engineering in one of the Northeastern Universities, Thailand. The most programs that learners studied were Logistic Engineering with 104 learners (49.5%), followed by Digital Engineering with the number of 40 (18.7%). Moreover, the 3rd year learners were the highest number at 72 (33.65%), followed by the 4th year learners at 57 (26.6%), also females were the highest number at 147 (68.7%). Most of the learners were studying English for more than 15 years at 111 learners (51.9%), followed by 10-15 years, at 54 (25.2%). However, the learners have never been to a country that uses English as the first language at 163 (76.2%).

Table 2 Analysis of Respondents' Reason

Items	Respondents (n=214)	
	f	%
Reason for studying in international program		
a) To improve my level of English	38	17.8
b) To study in a smaller group	107	50.0
c) To have more opportunities for international mobility	39	18.2
d) To have better professional opportunities	30	14.0
Total	**214**	**100.0**

As can be seen from table 2, the reason for studying in an international program was 1) to improve my level of English indicated 38 respondents (17.8%), and 2) to study in a smaller group showed 107 respondents (50%) and, 3) to have more opportunities regarding international mobility with 39 respondents (18.2%), 4) to have better professional opportunities showed 30 respondents (14%), respectively.

Table 3 Analysis of Respondents' Reason crosscheck with the student's year

Reason for studying in international program	Year	Respondents (n = 214)	
		f	%
a) To improve my level of English	1st year	1	2.63
	2nd year	16	42.11
	3rd year	12	31.58
	4th year	9	23.68
		38	100
b) To study in a smaller group	1st year	8	7.48
	2nd year	39	36.45
	3rd year	32	29.91
	4th year	28	26.17
		107	100
c) To have more opportunities in international mobility	1st year	3	7.69
	2nd year	14	35.90
	3rd year	8	20.51
	4th year	14	35.90
		39	100
d) To have better professional opportunities	1st year	2	6.67
	2nd year	10	33.33
	3rd year	7	23.33
	4th year	11	36.67
		30	100
Total		214	

As can be seen from table 3, for each reason, they were divided by the year of study. The reason to improve my level of English indicated second-year students were the most selected with 42.11%. The reason to study in a smaller group led by second-year students with 36.45%. The reason to have more opportunities in international mobility selected by two groups, second-year and fourth-year students as 35.90% and 35.90%, respectively. The last reason for better professional opportunities showed that fourth-year students voted the most with 36,67%.

Table 4 Analysis of Respondents' Reason crosscheck with the programs

Reason for studying in international program	Program	Analysis	
		f	%
a) To improve my level of English	Chemical Engineering	38	17.76
	Logistic Engineering	0	0
	Digital Media Engineering	0	0
	Telecommunication	0	0
	Total	38	
b) To study in a smaller group	Chemical Engineering	0	0
	Logistic Engineering	106	50.00
	Digital Media Engineering	1	0
	Telecommunication	0	0
	Total	107	
c) To have more opportunities in international mobility	Chemical Engineering	0	0
	Logistic Engineering	0	0
	Digital Media Engineering	39	18.22
	Telecommunication	0	0
	Total	39	
d) To have better professional opportunities	Chemical Engineering	0	0
	Logistic Engineering	0	0
	Digital Media Engineering	0	0
	Telecommunication	30	14.02
	Total	30	
	Total	214	

As can be seen from table 4, the respondents' reason crosscheck with the program indicated the following results. The reason to study in a smaller group showed that logistic engineering was the most program voted with 50% across the years. The reason to have more opportunities in international mobility was the second priority expressed by the program Digital Media Engineering with 18.22%. The third reason was to improve my level of English with the 17.76% selected by Chemical Engineering. The last reason was to have better professional opportunities voted by the program telecommunication with 14.02%.

4.3 The result of the perception of Thai tertiary-level engineering learners toward EMI

This section presents the results of perceptions of Thai tertiary-level Engineering learners towards EMI (questionnaire) to respond to the first objective. There were 3 main topics: Overall perceptions, Course and Materials, and Internationalization and language learning. These three topics are conducted under Dafouz and Smit's (2016, 2020) ROAD-MAPPING framework as conceptual frameworks. Nevertheless, the questionnaire measured the IOC by high expertise lectures on English or related fields to measure their validity and reliability. After analyzing validity and reliability, collecting data was conducted, and a final questionnaire was administered to the samples. Moreover, this section shows the additional perception through EMI (Semi-structured interview) which are the perception of an international program, challenges on EMI, and perception and understanding of the international program

Table 5 The result of the Overall Perception of Thai tertiary-level Engineering
learners toward EMI

No.	Overall Perception	(n = 214)		Level
		$\bar{x}$	S.D.	
1.	I think the courses or subjects of the international program are appropriate to learn.	4.09	.881	High
2.	I think the international program management is well coordinated.	4.14	.859	High
3.	I think an English training course before starting the international program is necessary.	4.29	.840	High
4.	I think learning a subject in English is a positive experience for me.	4.28	.789	High
5.	I think the subjects can respond to students' satisfaction.	4.21	.799	High
6.	I need to study very harder while learning the subject in English in the international program.	4.46	.676	High
7.	I would recommend this international program to others.	4.25	.810	High
	Total	4.25	0.81	High

As can be seen from table 5, the respondents' perception of EMI indicated a high level on average with a mean score of 4.25. The highest item in overall perception was the item "I need to study harder while learning the subject in English in the international program" with a mean score of 4.46 and indicating a high level. Meanwhile, the lowest item was the item "I think the courses or subjects of the international program are appropriate to learn" with a mean score of 4.09 and a high level.

Table 6 The result of the Course and materials of Thai tertiary-level Engineering learners toward EMI

| No. | Course and materials | (n = 214) | | Level |
		$\bar{x}$	S.D.	
1.	I think the lecturers can speak clearly English while teaching.	4.07	.413	High
2.	I think the lecturers introduce the course syllabus and commitments clearly before starting the course.	3.57	.652	High
3.	I think the lectures should use English for the whole teaching hours without any other languages used.	4.06	.751	High
4.	I think the English materials are available enough.	3.11	.812	Medium
5.	I think the perception of learning subjects in English is not as different as learning in Thai.	3.63	.763	High
6.	I think the evaluation in an international program is more difficult than in a regular program.	3.46	.785	Medium
7.	I think, overall, the course contents in the international program have met my expectations.	3.72	.760	High
	Total	3.66	0.71	High

As can be seen from table 6, the respondents' perception of EMI in the component of course and materials indicated a high level on average with a mean score of 3.66. The highest item in course and materials was the item "I think the lecturers can speak clearly English while teaching" with a mean score of 4.07 which indicated a high level. Meanwhile, the lowest item was the item "I think the English materials are available enough" with a mean score of 3.11 and a medium level.

Table 7 The result of Internationalization and language learning of Thai tertiary-level
Engineering learners towards EMI

No.	Internationalization and language learning	(n = 214)		Level
		$\overline{\text{x}}$	S.D.	
1.	I think taking the international program will have a positive effect on my professional future.	4.44	.674	High
2.	I think taking part in this program may improve my English.	4.27	.739	High
3.	I think studying in the international program encourages me to find more English materials.	4.33	.761	High
4.	I think following lessons in English has provided me with technical vocabulary and skills in English.	4.43	.622	High
5.	I think I am prepared to study and even work in a foreign country that uses English.	3.76	.864	High
	Total	4.25	0.73	High

As can be seen from table 7, the respondents' perception in terms of internationalization and language learning toward EMI indicated a high level on average with a mean score of 4.25. The highest item in internationalization and language learning was the item "I think taking the international program will have a positive effect on my professional future" with a mean score of 4.44 which indicated a high level. Meanwhile, the lowest item was the item "I think I am prepared to study and even work in a foreign country that uses English" with a mean score of 3.76 and a high level.

4.3.1 perception of the international program

This section reports the participant's perception of the international program. Also, it mentions the reason that they chose to study in the program.

I think I feel positive and happy when studying in the international program.

The interview data suggested that the learners feel positive and happy when studying in an international program, especially when using English as a medium of instruction (EMI) as a tool to support content and instructions. They also feel "*Challenge*, *and do not pressure,* (Student 2, SSI) because English is an

important language which can be a benefit for us in any aspects, also we need to use English in daily life, **(**Student 3**)**

One of the challenges is that **"***It is challenging, and there are some parts that I cannot understand. Maybe because some of the teacher'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 4, SSI**)**

From this perspective, it showed that the accent is one of the important factors that learners expected to gain**.** Moreover, the Engineering technical words sometimes were difficult to interpret**.** Many students needed to find out the meaning**.** So, **"***If sometimes teachers and students use Thai while studying, I still understand. But if it's in English, you may need to focus all the time. so as not to fall off. Therefore***,** *I think that is a little bit difficult than regularly***. (**Student 1, SSI**).**

Nevertheless, most learners pointed out that the reason that they chose to learn in international programs was 1**.)** to improve English language skills 2**.)** to use for a future career path and working in abroad**.** And 3**.)** to gain both content and language**.** As these following statements**:**

"*I feel that even if I study in a regular course. I have already learned more English already. So, if we study internationally, we will be able to use English every day. And I feel that I will develop my own English language***", (**Student 3, SSI**).**

"*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, 4**).**

"*I expect to gain both English language and content, especially communication skills.***" (**Student 2, SSI**).**

All statements above showed that English has a very significant role in learners' achievements**.** Besides, the student is expected to gain both content in English and language at the same time**.** Therefore, that is one of the reasons to study in an international program**.**

4.3.2 Challenges on EMI

The learners suggested the challenges on EMI were technical vocabulary, speaking English, and the assignments. Firstly, engineering technical vocabulary was challenging to learners because *it was different from general technical terminology or academic vocabulary. Moreover, I have to go back and study more about it.* (Student 2, SSI). Second, speaking English in the classroom or international program challenged them to motivate and improve their English proficiency. *"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). Third, the assignments challenged learners to be active and focus on the subjects because they needed to search for more information and keep improving their knowledge. *"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).

On the other hand, the difficulties were the online learning platform and the teacher's accent. Currently, the learners met with the disruptive changes situation such as the COVID-19 pandemic, so they needed to use online learning platforms to support any convenience in teaching and learning. However, sometimes if the system was automatically online, it must be punctual such as submitting an assignment, attending class, etc. *"The difficulties are about the study time and online platform. Everything is online and if you are late it means you are late because it is an automatic system (submit work), which sometimes is a problem with external factors, such as the Internet, various online devices".* (Student 3, SSI). In addition, the teachers' accents were quite difficult to catch up with or can be misunderstood because the teachers were not native. *"The misunderstanding from not catching the whole thing and lead to not being able to communicate back to the teacher correctly."* (Student 4, SSI).

4.3.3 Perception of Internationalization

According to Dafouz and Smit's (2016, 2020) ROAD-MAPPING framework on Internationalization, the students' perspectives were the following: First, most students understood that to practice internationalization, we should have

motivated environments surrounded as well as combine some intercultural dimensions into both formal and informal curriculum (Internationalization of curriculum: IoC). For example, *"There may be a variety of languages and cultures, such as Chinese, Japanese, according to learners' interests. If you are interested in any language, you can study more"* (Student 1, SSI), also *We use English more than Thai, and those activities which show the internationalization such as Christmas, Valentine's Day, or the activities that include the international students. Emphasizing the importance of international activities as happened in high school"* (Student 4, SSI). Moreover, English was an international language, so we should provide it as the main language in the curriculum. *"Every subject, teachers must be in English. And on the discussion part, they should motivate students to answer and interact in the classroom, also they should have a foreign teacher with a good assent".* (Student 2, SSI).

Second, the learners pointed out that going abroad, and exchange programs are the interesting activity that they would like to do (International abroad: And the faculty typically provided the study exchange programs and had several academic collaborations with international institutes. *"I would like to have the exchange program abroad and go to The United States, and England"* (Student 2, Student 4 SSI). Also, some of them had an opportunity to study exchange abroad. *From my experience in the 3rd year, there was a project to do exchange projects with universities in Japan. The purpose was to learn and exchange knowledge. Surprisingly, their English and accents were diverse. At first, I thought I understood enough but to communicate I don't understand at all"* (Student 1, SSI). However, due to the COVID-19 pandemic situation, they could not go to study exchange abroad. *The program has an exchange program for students to go to study in Taiwan. But during this situation of COVID-19, I didn't go anywhere.* (Student 3, SSI).

Thirdly, in an international program, having a diverse international student studying in the faculty is very important. However, it might not attract them enough. As seen from the number of international students in the programs, which is estimated at just a few students in the programs. *"I only have half-breed/mixed friends. (International at home: IaH)"* (Student 1, SSI). However, most of them wish to have foreign friends study in the program or the classroom in order to build an international environment, improve their English language, and exchange cultures.

4.4 Correspondence Profile: Thai tertiary-level Engineering teachers

There are 65 teachers, teaching in the international program, Faculty of Engineering in one of the Northeastern Universities, Thailand. The following table details the profile of the respondents.

Table 8 Analysis of Respondents' Profile: Engineering teachers

Items	Engineering teachers (n = 65)	
	f	**(%)**
Programs		
a.) Chemical Engineering	12	18.5
b.) Logistic Engineering	14	21.5
c.) Digital Media Engineering	23	35.4
d.) Telecommunication	16	24.6
Total	**65**	**100.0**
Year		
a.) 2nd year	28	43.1
b.) 3rd year	18	27.7
c.) 4th year	19	29.2
Total	**65**	100.0
Native language		
a.) Thai	65	100.0
Total	**65**	**100.0**

As can be seen from table 3 above, there are 65 participants, teaching in the international program, Faculty of Engineering in one of the Northeastern Universities, Thailand. The most programs that teachers teach were Digital Media Engineering with 23 teachers (35.4%), followed by Telecommunication Engineering with the number of 16 (24.6%). The most teaching year was the 2nd year with 28 (43.1%), followed by the 4th year with 19 (29.3%). Finally, the native language is Thai with 65 (100.0).

Table 9 Analysis of Respondents' Profile: Engineering teachers continued

Items	Engineering teachers (n = 65)	
	f	(%)
Degree of the study		
a.) Doctoral Degree	65	100.0
Total	**65**	**100.0**
Position		
a.) Lecturer	12	18.5
b.) Assist. Prof	43	66.2
c.) Assoc. Prof	10	15.4
Total	**65**	**100.0**
Teaching experience in English		
a.) 1-4 Years	8	12.3
b.) 4-8 Years	45	69.2
c.) 8-12 Years	12	18.5
Total	**65**	100.0

As seen in table 9, 65 lectures held the doctoral degree (100%). Teachers with the most position in education were Assist. Prof. with the number of 43 (66.2%), followed by the lectures at 12 (18.5%). Moreover, the highest teaching experience in English was 4-8 years at 45 teachers (69.2%), followed by 8-12 years with 12 (18.5%).

4.5 The result of perceptions of Thai tertiary-level Engineering teachers towards EMI

This section demonstrates the results of perceptions of Thai tertiary-level Engineering teachers towards EMI (questionnaire) to respond to the first objective. There were 2 topics: Overall perceptions, and Teachers' perceptions of the teaching and learning process from the perspectives of learners. Moreover, the questionnaire measured the IOC by high expertise lectures on English or related fields to measure their validity and reliability. After analyzing validity and reliability, collecting data was conducted, and a final questionnaire was administered to the samples. Nevertheless, this section presents the perception of the international program, the Challenge of EMI, and the perception and suggestion aspects to adjust or develop the language used for teaching.

Table 10 The result of perceptions of Thai tertiary-level Engineering teachers towards
EMI.

No.	Overall Perception	(n = 65)		Level
		$\bar{x}$	S.D.	
1.	I think resources for teaching e.g., textbooks and reference books, are more plentiful in English than in Thai publishing.	3.82	.788	High
2.	I think I support adopting EMI at the university where I teach.	4.46	.663	High
3.	I think EMI increases the workload of lectures.	4.34	.619	High
4.	I think it is difficult to express content in English.	3.68	.752	High
5.	I think EMI conflicts with Thai scientific people with their national interests.	4.28	.839	High
6.	I think it is easier to organize the lesson and prepare classroom materials in EMI.	4.00	.791	High
7.	I think the greatest problem in using Thai as a medium of instruction is special terms translation.	4.15	.712	High
8.	It is easier to teach non-language subjects (e.g., Mathematics, Physics) in English than in Thai.	4.12	.839	High
9.	I think I am proficient enough to teach in English.	3.63	.802	High
10.	I think the English proficiency of learners I teach is not adequate for them to study non-language subjects.	3.75	.791	High
	Total	4.05	0.74	High

As seen from table 10 in the overall perception section, the highest
strongly agree on a level where I think lecturing in Thai allows a teacher to go deeper
into the content of the lesson than lecturing in English ($\bar{x}$ = 4.52), followed by I think,
I support adopting EMI at the university where I teach ($\bar{x}$ = 4.46), and I think, EMI
increases the workload of lectures ($\bar{x}$ = 4.34), respectively. The lowest mean score
indicated the item I think I am proficient enough to teach in English ($\bar{x}$ = 3.63). The
average mean score was 4.05 with a high level.

Table 11 The result of Teachers' perception of the teaching and learning process
from the perspectives of learners

No.	Teachers' perception of the teaching and learning process from the perspectives of learners	(n = 65)		Level
		$\overline{x}$	S.D.	
1.	I think lecturing in Thai can promote learners' interest in learning more than lecturing in English.	3.63	.782	High
2.	I think EMI will provide learners with being more successful in business life after university.	4.48	.687	High
3.	I think learners tend to neglect those subjects taught in English.	4.25	.771	High
4.	I think learners' gains regarding their fields of study increase via EMI not different from Thai medium instruction.	4.32	.752	High
5.	I think lecturing in Thai produces a better classroom atmosphere than lecturing in English.	4.37	.675	High
6.	I think learners utilize their academic and social environments more in Thai medium instruction.	3.94	.808	High
	Total	4.17	0.75	High

In addition, on the Teachers' perception of teaching and learning process from the perspectives of learners section. The highest mean score was I think EMI will provide learners with being more successful in business life after university ($\overline{x}$ = 4.48), followed by I think lecturing in Thai produces a better classroom atmosphere than lecturing in English ($\overline{x}$ = 4.37), and I think learners' gains regarding their fields of study increase via EMI not different as Thai medium instruction ($\overline{x}$ = 4.32), respectively. Meanwhile, the lowest mean score indicated the item I think lecturing in Thai can promote learners' interest in learning more than lecturing in English ($\overline{x}$ = 3.63). The average mean score for Teachers' perception of the teaching and learning process from the perspectives of learners was 4.17 a high level.

4.5.1 Perception of an International Program

This section reports the participant's perception of an international program. Most of the results showed a positive view of teaching in international programs because it provides a good advantage for students with good opportunities to study, future career paths, and globalization changes. First, the teachers viewed that studying in an international program can be able to provide a good opportunity for students in terms of English improvement and international perspectives "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" (Teacher 1, SSI).

Moreover, teaching in the international program was one of the important factors to support students' future career paths as mentioned 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" (Teacher 2, SSI).

"I am happy, but I need to prepare more workload" (Teacher 4, SSI).

Finally, globalization changes caused the students to develop English language. "It is necessary for the future of Thai students? We think that change in this globalization is very important. So, the international program or this English language skill is required." (Teacher 3, SSI).

4.5.2 Challenges to EMI

EMI challenged teachers in various dimensions: curriculum and developing gap. First, by studying in an international program, the students should be able to gain English communication more than in the regular program. *" Because the technical skills of the students will be equal, only language skills will improve. If the students pay more for the higher tuition, they should get more for them to get the opportunity to grow by applying for more jobs. We must try to make a difference"* (Teacher 1, SSI). Second, besides focusing on international program improvement, we should also focus on enhanced English in the regular program because the regular students tend to be more active and have potential in the Engineering field. (Teacher 3, SSI). Third, the good thing about having an international program was we knew

what we should develop, compared with others institutes. " *The challenge is to level up to real internationals. This does not mean that teaching in Thai is not good. But teaching in English helps us develop. This opens up a gap for us to see where we need to develop. compared to the outside through hands-on"* (Teacher 4, SSI).

However, most teachers viewed that the difficulties were students' English basic, the international environment, and individual teaching experience. As we know, many Thai students are faced with the English fundamental, so when they started to study in the program, they might not get used to the language. *"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"* (Teacher 1, SSI). *"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"* (Student 2, SSI). Moreover, as we still teach in a Thai setting, so we are not exactly called an international setting. **"**In my opinion, international programs based in Thailand environment, are not yet ready to be international, which environment is very difficult to create internationally. so, it became very difficult to create internationally, and they scared to fail in both content and language. **(**Teacher 3, SSI).

4.5.3 The suggestion and aspects to adjust or develop on language used for teaching.

The interview presents several interesting perspectives during teaching, based on Dafouz and Smit's (2016, 2020) ROAD-MAPPING framework on internationalization, the teachers' perspectives were the following:

To create an international environment and curriculum, many agents need to support (International of curriculum: IoC). For example, *"They should have at least 40% foreigner teaching in the program, and they should have more international students in the program, after all, both the teacher and the classmates must speak English"* (Teacher 1, SSI). *Therefore, we must consider the content to be international, not only ASEAN perceptions* (Teacher 2, SSI). Moreover, it would be better to have more international students, studying in an international program because now we had just a few numbers from ASEAN countries. Also, if we have them, it will force us to teach in 100 percent English (International at home: IaH).

Moreover, the faculty provided the exchange programs and MOU with international institutes (International abroad) *"There are MOU with the international institutes with a short one or the internship program in Taiwan, Malaysia, and Japan"* (Teacher 1, SSI). *"There will be online workshops with Japanese universities and the field trip abroad. We have the program to go on a field trip abroad every year, but after finishing the 1st generation, there was a COVID-19, so the students didn't go"* (Teacher 2, SSI).

In addition, there were some key points that teachers suggested for future developments. First, it was creating a positive attitude toward Engineering. To be a good Engineer, we should build a good attitude, mindset, and critical thinking

"Well, first of all, to be a good engineer, you have to cultivate the right attitude. The reason that Thai students don't go anywhere in language and attitude is that they are afraid to answer wrongly, which will make you not know what the right thing is. Compared to foreign students with the process of learning, they are adapting quickly, learning what is right and wrong and accepting it, so the keyword is adaptability" (Teacher 3, SSI).

Second, sometimes the focus is on increasing foreign teachers, but it is now a digital era, so the digital platform should develop programs that become internationally advanced.

" As we take care of technology, we think that it is not necessary. The foreigner who lives here or where he is is not necessary. We must use technology to benefit, in order to adjust the various courses that are suitable for Thai Students. For example, create courses, and content to make it exciting, interesting, and make the student want to learn by inviting the native speaker through Digital platform" (Teacher 3, SSI).

Finally, teacher 4 suggested that completing the international program, required many components and mutual promotion. It should not be heavy in any way, such as teaching staff, environment, language roles, and classroom management. We need balanced elements. Also, the course is not international. It gives students barriers to language, academics, and personal relationships, less interaction, creates passive learners, and makes teachers use less natural English. And in terms of engineering, most of the technical term is used in teaching, so it feels dry. In terms of teaching.

4.6 The results of the extent the Thai tertiary-level Engineering learners use EMI

This section provides a response to the second research question about what extent the learners of Thai tertiary-level Engineering use EMI. This section was conducted by semi-structured interview for 4 learners studying in an international program, the Faculty of Engineering in one of the Universities in the Northeastern part. All the findings are derived from the semi-structured interview conducted in Thai and have been translated into English *Italics* are translations of original speech in Thai. Section 4.6.1 presents occasions where Thai and English used in the classroom and is divided into 4 parts: 4.6.2.1 clarification, 4.6.2.2 Academic presentation 4.6.1.3 Negotiation, and 4.6.1.4 small talk.

4.6.1 Occasions where Thai and English used in the classroom

4.6.1.1 Clarification

Most of the students used Thai to ask the questions because they felt more comfortable and understandable, especially in the Engineering theories. "*some theories are a little difficult which you may not understand. Therefore, some Thai language is required* " (Student 1, SSI). However, some students preferred to use English to ask and interact with teachers even though they might have some difficulties with English communication and vocabulary used. "*I prefer to use English when to ask the questions, sometimes I may have some problems on speaking skill and academic word but I think it's better to keep practicing*" (Student 4, SSI). "*I think English was used 90% and Thai 10%, and I would like to use English all sessions*" (Student 2, SSI).

Moreover, as the Engineering course had its own technical words, so they prefer to use English, and translation seemed less important for them. "*Most Engineering words are technical words, so I mostly understand its' meaning; however, if I don't understand, I will search on google to clarify the meaning, and use a dictionary to find the academic words*". (Student 2, SSI). "*English usage is not complicated like Thai, especially on vocabulary explanation*" (Student, SS1).

4.6.1.2 Academic presentation

Using English for academic presentation was a significant skill for students to practice English because they had an opportunity to practice English skills such as speaking, presentation skill, and writing skills. Also, they used English 100% when presenting the academic content to teachers. *"When presented with the assignment, we had to use English 100%"* (Student 2, SSI). Moreover, they had a chance to use technical Engineering words when presenting the work. *"It was useful to frequently use technical Engineering words when we presented the works"* (Student 4, SSI). More importantly, it was a good technique to train students in self-preparation and self-learning because when a teacher assigned them, they had to prepare and find more information from various sources to complete the presentation. *"I realized that presentation in the classroom trained me to be more responsible and hardworking, I had to find some presentation techniques guidelines from YouTube and practice to build my confidence, particularly in speaking skills."* (Student 3, SSI).

4.6.1.3 Negotiation

Most students used English to negotiate and discuss in the classroom because they would like to practice English skills which is one of their objectives, and the program's purpose is to improve students' English skills. *"I used English when negotiating and discussing content with teachers, and it is useful to use English because I had the chance to practice English communication"* (Student 3, SSI). Moreover, using English when discussing could support students in their future career preparation, especially when they need to discuss in a job interview, or contact an international company. *"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 helps gives us a good advantage over the regular program when it comes to the consideration of the job applications"* (Student 4, SSI). However, if the students discussed with a classmate or on informal issues, they chose to use Thai. *" I use Thai to discuss homework, and review the lecture with my friends and senior students because it is more easily understandable and more friendly".* (Student 2, SSI).

4.6.1.4 Small talk

All students preferred to use Thai when having small talk and greeting their classmates because it seemed more casual and friendly, but it was considered that only a few percent (10%). *"Thai language is used when communicating in everyday activities such as eating or talking in class with friends. But if talking to the teacher, it must be in English"* (Student 2, SSI). However, some students agreed to use English for all situations in the program, since they would like to be actual internationalization in the university. *"I sometimes feel like, my friends, like using Thai and the teachers answer in Thai as well which I don't want to happen, I chose to learn here, then I expected to use English all and experience an international environment."* (Student 3, SSI). Therefore, it challenged many students to adapt themselves to using English in daily life even if it is just greeting teachers and friends. *"It is challenging to use English every day but, we need to use English. And even if you study in a regular program, you still need to learn more about English because we have to take advantage of every aspect. English is very useful. If we get the language, it will benefit us"*. (Student 2, SSI).

4.7 The results of the extent the Thai tertiary-level Engineering teachers use EMI

This section provides a response to the second research question about what extent the teachers of Thai tertiary-level Engineering use EMI. This section was conducted by semi-structured interview for 4 teachers who teach in an international program, the Faculty of Engineering in one of the Universities in the Northeastern part. All the findings are derived from the semi-structured interview conducted in Thai and have been translated into English *Italics* are translations of original speech in Thai. Section 4.7.1 presents Occasions where Thai and English used in the classroom which are categorized into 2 main parts 4.7.1.1 Greeting and leave-taking 4.7.1.2 Praising 4.7.1.3 instructing content and language 4.7.1.4 Giving Direction 4.7.1.5 Reviewing lesson 4.7.1.6 Giving meaning of Technical Engineering words.

4.7.1.1 Greeting and leave-taking

Most teachers used English as the priority language in the classroom. Even starting the class by having a greeting, they chose to use simple words and

informal language in order to attract students' attention. *"English is the main language that I always use in the classroom, starting from greeting students using simple sentences such as "Hello everyone, welcome back to class"* (Teacher 1, SSI). Moreover, all teachers viewed that we must use English entirely 100% in class, however in practice, it still inserted Thai for 10%, and one of that percent was greeting. *" I used 100%, but in practice, it's English 90, Thai 10. Each teacher's concept is different, but for me, greeting during teaching until the end of teaching will be all in English. For example, Good morning class, how is it going? And have a nice day, goodbye."* (Teacher 2, SSI). As can be seen, teachers used a formulaic salutation pattern that Thai students know and can be able to understand.

4.7.1.2 Praising

The students deployed English words or sentences to praise the students who answered in English or interact with teachers. *"We have to praise students, in order to build classroom motivation and give encouragement even sometimes the content might be difficult, and the student could not explain everything, such as a very good answer, how can you find the answer"*. (Teacher 3, SSI). This parsing also played a key role to evaluate students' answers. *"I try to motivate students, by asking the questions, related to the content, if someone tries to interact with me, I will praise him and try to motivate others to answer"*. (Teacher 1, SSI).

4.7.1.3 Instructing content and language

Regarding the program policy, the teachers, teaching in international programs must instruct in English for 100%. Therefore, most of them agree with this condition *"Why do we have to use Thai? because they have already paid tuition fees.* (Teacher 3, SSI). *"In principle, Thai shouldn't be used in international courses because If international students are coming to study It will cause them to feel confused"* (Teacher 4, SSI). And **"We should create an English-language environment as much as possible"** (Teacher 1, SSI). However, in practice, some teachers recommended that Thai language should be added when explaining difficult content and depending on the occasion. **"***I mix 90/10, is it still necessary? You should mix some Thai because the English repeat sometimes cannot make them understand. But if there are foreign students in the class, I would not be able to speak Thai, so the situation may change"* (Teacher 2, SSI). Nevertheless, teachers were not only

instructing the Engineering content but also inserting the grammatical used and correct grammatical points for students. *"I need to prepare myself before lecturing the class, not only the materials but also English speech when delivering in class because I would like to insert the grammar and make sure they are correctly used too"* (Teacher 2, SSI).

4.7.1.4 Giving Direction

All teachers gave the directions or assignments in English because it would be connecting to the lesson. *"After I finish a lesson, I would give the assignment to the students in English, and it seemed that the student understands what I assigned them to do"* (Teacher 1, SSI). There were two main directions: in-class assignment and online class assignment. These two types were assigned in English. For example, in-class assignments usually happen when the teacher is unprepared in class *"Sometimes, I asked a student to read the theory or answer it, and all conversation was in English"* (Teacher 3, SSI). Also, the teacher planned and prepared what they would like to assign after class and set it on the slide. *"I usually plan the assignment and put them on a slide when the class is done"* (Teacher 4, SSI). Speaking of online assignments, today we have adapted online platforms because it is convenient regarding the pandemic factors. So the teachers would have to assign the student by online application such as email, google classroom, or Zoom, and use Facebook group or line to communicate any updates. *" I have used many online applications to teach and assigned works to students because it was convenient such as email, google classroom, and line to communicate any updates."* (Teacher 3, SSI). However, since they use Thai only the students did not understand the directions. *"I will use English to give an assignment, however, I could use Thai if the student comes to ask again after class"* (Teacher 1, SSI).

4.7.1.5 Reviewing lesson

English was the main language used in reviewing lessons, particularly in content, while Thai was used for a few when interacting. *"When we had the review session, I used English as the first language, however, I added Thai when greeting students or informal break session"* (Teacher 2, SSI). It was an advantage for students to review in English than Thai because they had a chance to review English content, Technical Engineering words, and get used to English skills used. *"To be competitive*

in Engineering sometimes, knowing Engineering words were not enough, but we needed to use English for communication at the workplace or become global Engineers" (Teacher 3, SSI). Moreover, many teachers use lecture notes, summary notes, and slides to review for students. *"I use my summary note to review for students, and of course the slide" (Teacher 4, SSI). I prepared the slide to review for students, it takes time to prepare, but it is convenient for today's learning platform*" (Teacher 2, SSI).

4.7.1.6 Giving meaning to Technical Engineering words

It was such a challenge for Engineering students when they needed to learn Technical Engineering words. All teachers suggested that Engineering words have their own meaning, in each particular field, and Engineering learners understood by their natural sense. So we no need to interpret words in Thai, such as motor, meter, control, cell, and many more. Those Technical terms will be of benefit to the engineering industry when the students start to work in the company or organization. *"The strong point for technical terms is future career because the engineering industry uses a lot of technical terminologies, and usually working in foreign countries, so at least the students get the vocabulary. As you can see, the students who graduated are not very good at English, but in some parts, he at least probably got a terminology"* (Teacher 2, SSI).

"In the future, the engineering industry in Thailand will decline Therefore, engineers have to work abroad. The fact that he had prepared before the bachelor's degree was his advantage. It was an advantage for him to work and communicate in English both in terms of report writing and correspondence, including Engineering words. (Teacher 1, SSI).

However, there was a few percent that needed to interpret or explain in Thai such as academic words and theory. *"I will repeat the theory part when it is a really important point or difficult"* (Teacher 4, SSI). So, the teachers suggested the student to meaning or answer o outside resources selected by teachers *"YouTube is also available, but it's not very good for students to go see for themselves. We have to search and screen to see which media and content creators are right. The content has to be correct first, and the latter suggesting that students search for this is like having a short, open content course at MIT."* (Teacher 3, SSI).

CHAPTER V
DISCUSSION AND RECOMMENDATION

This chapter presents the findings related to the result of previous research on the perception of English as a Medium Instruction context in order to understand the aspects of EMI implementation in Thai Engineering learners and teachers at the tertiary level.

The chapter is divided into five sections. The first one, Section 5.1, the overview of the key findings of Learners' Perceptions, Section 5.2, Discussion of Learners' Perception toward EMI, Section 5.3, The overview of the key findings of Teachers' Perceptions, Section 5.4, Discussion of Teachers' Perceptions towards EMI, Section 5.5, The extent of Thai tertiary-level Engineering learners use of EMI, Section 5.6, The extent of Thai tertiary-level Engineering teachers use of EMI, Section 5.7, Implication of Research, and Section 5.8, Suggestions and Recommendations.

5.1 The overview of the key findings of Learners' Perceptions

5.1.1 Learners' overall perceptions

The result shows that Logistic Engineering is the highest program that students study, and the 3rd year is the level with the highest number of enrolled students. This can illustrate that nowadays, the logistic field has become a famous industry, especially in international business. This is in line with the statement of Woschank & Pacher (2020) who argued that the structured development of employees' competencies is one of the most important requirements for a successful implementation of Industry 4.0 strategies. Therefore, this may be the reason that made learners to be interested in choosing to learn in this field. Studying in an international program can be a supporting tool to achieve a career, especially in improving the English language. Also, the 3rd year students are in the period of graduation preparation.

However, the number of students who have not been abroad is more than the ones who used to go abroad. Regarding the finding, they expected to learn and

develop their English skills by joining the international environment, and the 1st year students seemed to have a strong motivation to join the international program. However, when it comes to the 4th year, the number of students who were willing to improve slightly drops. Therefore, this can be seen that this international program should create some additional English skills classes or provide motivation or inspired classes for students to be more aware of the benefit of having English skills and attending an international program. In line with the finding of (Thompson et al (2022) who indicated that students with stronger efficacy put forth more effort and see the international program as a development opportunity.

Also, the learners understand the roles of EMI, and they have applied their learning styles in order to support their practices and processes. For example, they use other resources to find the answers, use learning applications to fulfill understanding such as YouTube, Google, and use peer tutoring to exchange knowledge with each other. Moreover, some use exercising practicing techniques because Engineering requires a lot of calculations.

5.1.2 Learners' perception of course and materials

The finding indicated that the teachers could speak English clearly while teaching in the classroom. This learners' perception is necessary to figure out that international programs required teacher preparation and development. Learners need to build a relationship with the teacher to learn using EMI. However, it cannot happen if the trust between learners and teachers is less. In line with the study of (Bienzobas, Herrarte & Vázquez (2019), the main challenges EMI lecturers face are that they have to deal with related specificities of teaching in a foreign language. Hence, teachers need to improve their teaching performance as this study finding also suggests that learners measure their teachers' English proficiency.

English language is a primary language used in EMI or international programs. However, Thai language may be used in order to clarify answers. The agents in this phenomenon are learners and teachers who need to use English in the EMI classroom. The learners agree to use English 100% in the classroom since they want to improve their English and would like to see the actual international environment. The learners have a positive perspective to learn Engineering technical words by using English since Engineering vocabulary has technical sounds itself.

However, some students prefer teachers to switch to Thai language when they ask questions in Thai, and explain the difficult theory, which similarly affects teacher perceptions. However, in practice, they must use 10% Thai to explain the content. This shows that Engineering international programs in Thai setting still require Thai to support the classroom.

5.1.3 Learners' perception towards internationalization and language learning

Learners who attend international programs would be having reasonable arguments towards the benefit of learning using English in the classroom. This research finding shows that learners understand that having a global experience by getting used to communicating in English will enable learners to shape their future careers. This research revealed that taking the international program will have a positive effect on their professional future. The finding pointed to the same argument as the study of Husain and Mahfoodh (2021) that using English helped learners to gain real-world experience and knowledge about the environment of the real workplace.

Also, it can be related to learners' perception towards EMI that learners strongly agree that it is necessary to provide English training courses before starting the international program. In addition, most students have a positive perception towards EMI and view that learning subject in English is a positive experience (Mengjia, 2021).

5.2 Discussion of Learners' Perception toward EMI

5.2.1 Learners' perception on EMI and international program

The finding revealed that the lowest mean score of the overall perception of Thai tertiary-level engineering learners towards EMI was the courses or subjects of the international program that are appropriate to learn. This indicated that the confidence level to learn through EMI can be gained through prior English experience. Learners would find EMI appropriate as they have basic language information. However, different settings may have a different perspective on EMI for

students who have never had an English learning experience or have less knowledge about English.

Also, learners' decisions to study in the international program may be formed based on a variety of reasons. This study indicated that learners who are studying in the engineering international program feel happy and satisfied. Some learners find this international program challenging as they need to put an effort to understand the vocabulary and teachers' communication abilities. This result is similar to Ahmad (2015) research who concluded that learners' perceptions and expectations toward international program are due to the service quality offered and provided.

5.2.2 Learners' Perception towards challenges in EMI

The finding highlighted that the lowest mean score of this perception was that English materials are available enough. It seems that learners understand well the terms or the vocabularies. However, they are not sure about the context that is suitable for their knowledge. Since teachers 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 learners. Hence, EMI curriculum for many subjects is important.

Also, technical vocabulary, speaking English, and assignments become the challenge that many learners are aware of. These points indicated that English proficiency may vary among learners. However, the most important thing is the improvement of learners themselves towards using English as their medium in the classroom. Aizawa et al (2020) 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.

5.2.3 Learners' Perception and understanding on Internationalization

The lowest mean score of this perception was the preparation to study and even work in a foreign country that uses English. This opinion indicated that learners know exactly about the benefit of attending class with EMI implementation. However, they did not define the preparation to study abroad through EMI as the priority or the challenge that they focus to achieve. Learners' views on internationalization are rather to understand the condition that internationalization is

necessary to get learners to experience the global setting. Hence, they do not consider it as the objective to go to study. They seem to understand that attending the EMI classroom will enable them to become at a different level and have a proper instrument to grow for their future career.

Learners are expected to have abroad experience by joining international programs. They seem to look EMI as helpful since they frequently understand using English in the classroom. Many learners showed their interest in doing an exchange program. They do not want to miss the opportunity as they already attend an international program. This perception has led to the consideration that using English offered many advantages. To address these challenges, teachers and learners used adaptive strategies, such as the use of alternative textbooks, and self-learning skills in order to prepare themselves for joining abroad experience (Yang et al (2019)

5.3 The overview of the key findings of Teachers' Perceptions

5.3.1 Teachers' overall perception

All teachers who are teaching in international programs need to hold a doctoral degree and have experience studying abroad. Also, they should have teaching experience in English for 4-8 years. This shows that the qualification of a teacher is very important because they are not only specialized in the Engineering field but also must be excellent in English skills.

For the key point towards EMI, they support the international program by using EMI in the classroom. However, they pointed out that Thai language can explain deeper into the content more than lecturing in English only. It does show that even if they teach in an international program that is supposed to be entirely 100% English, eventually they still need Thai language to support in some parts of teaching such as explaining the content, greeting, and answering questions. This issue should be seriously discussed with many agents such as teachers, students, administrators, and policymakers. Hence, teachers intended to ask the university administration to be responsible for monitoring the language provision and providing training (Ozer, O., 2020). On the other hand, teaching in EMI can increase the workload of teachers because they must prepare in English versions while at the same writing Thai content.

So, in the future, they should develop into a digital platform to help with teaching materials and supporting teaching tools (Teacher 3, SSI).

      5.3.2 Teacher's perception of teaching and learning process from the perspective of learners

      The finding from the item on teachers' perception of teaching and learning processes from the perspectives of learners indicated that EMI would help learners to be more successful in business life after university. To be joining the international program, there are many opportunities offered and available. Karnchanachari (2019) suggested that networking and connection among teachers should become the information for teachers to use to be convinced of learners' plans.

      The policymakers who define the regulations need to be aware that learners and teachers in the international program have to use English as the primary language in the classroom, just like the EMI administrators and heads of programs. This environment makes teachers feel positive about the international program and use EMI in terms of teaching because in this program teachers are able to develop learners' English skills and provide an opportunity for learners' future career paths. In the international programs, all academic resources are mostly provided to support the learning process.

      On the other hand, the finding of this study revealed that lecturing in English can promote learners' interest in learning more than lecturing in Thai. This indicated that it seems to be easy for teachers to share information as they find the information and get the data mostly written in English. Hence, teachers are able to forward as many as they can and as fast as they wanted.

      In general, the implementation of 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 teachers and learners with preparation courses such as training EMI teaching techniques and English preparation courses. This is in order to implement EMI smoothly in teaching in the classroom.

      Also, students have expressed a positive attitude towards EMI. It can be seen from their views that they do not feel pressure and would like to develop their English skills through study. However, some still follow the regulation that requires using 100% English but some do not.

Therefore, the administrators, heads of programs, including teachers should set up some policies that could motivate everyone to use English or build awareness of using English in the classroom. Finally, the teacher is one of the important factors to navigate the international environment in the classroom. They are the ones who can assist the university policy or are responsible for related activities that support the international environment to run effectively. For example, the importance of EMI will provide an impact on the initiative to arrange an international conference that involves many people including learners in the university, etc.

5.4 Discussion of Teachers' Perceptions towards EMI

5.4.1 Teachers' perception on EMI and international program

The finding highlighted that the item asking the level of proficiency to teach in English indicated a low level. It means that teachers are not confident to use English to deliver the content of the subject. It seems that the teacher has faced teaching obstacles as they have to share information accurately in the English language. Hence, this indication showed that teaching improvement for the teacher is required to help teachers to teach confidently in English.

Also, this research figured out that the teachers' perception is focused on the need for an international program to better Thai learners. One showed that globalization is the key to helping learners connect with the trend of the world and increase the capability to accommodate all desired states. As Souad, M., & Ramdane (2019) explained that the implication of mastering English language can be beneficial in various sectors. The most important thing is the ability to access the information written in English and to share the discovery in our field.

5.4.2 Teachers' perception of Challenges on EMI

The finding showed that the lowest mean score of the teacher's perception of lecturing in Thai can promote learners' interest in learning more than lecturing in English. This perception indicated that using English is also able to influence learners' interest in learning. This finding is interesting as the teacher can use the English language in EMI implementation effectively. It can be inferred that teachers still can adapt to using English to teach the content.

Interaction between teachers and learners is the key to the success of learning. However, using the English language to teach learners creates different responses. The teachers believed that all the information available during teaching hours provide learners with deep and meaningful information as English language is the language that has many words to describe the content. Hence, learners are able to access that information. However, some learners find it difficult as the cognitive ability factor is not yet used to comprehend the vocabulary. Galloway & Ruegg (2020) reported on such benefits for learners to include complete information and intercultural understanding while receiving the new experience of learning using English.

5.4.3 Teachers' perception on suggestion and aspects to adjust or develop language used for teaching

Although some students argued that it is important to have a foreign teacher teaching in the international program. It is assumed that a foreign teacher may be excellent with their speaking skill. The pedagogical content still matters. Moreover, learning is not about transmitting information to the learners. What matters is that the content that learners learn must be relevant to the learner's life. This can only be provided by a local teacher who understands the context and content very well. Metz(2002) suggested that when student knowledge is not valued, students may be resistant to linguistic terms and concepts, despite teachers' linguistic content knowledge and pedagogical approach.

5.5 The extent the Thai tertiary-level Engineering learners use EMI

5.5.1 Clarification

As the engineering field includes technical vocabulary and academic words. Leaners decide to clarify using an electronic dictionary. (Yuan, Wang & Eagle, 2019) added that practices of digital literacies empower learners to become active learners. This showed the way how learners clarified their understanding through utilizing academic sources.

The cognitive issue becomes the crucial point that international programs must include in the development program. Many learners find understanding

vocabulary in a specific context such as engineering very easy. Many textbooks showed technical terms that use native speaker mindset to understand. It becomes a challenge that learners face. A study conducted in China by Reynolds, Zhang (2021) showed that the challenge to understand the context in English is because of the lack of teacher feedback on the student's vocabulary use.

5.5.2 Academic Presentation

EMI emphasized learners to adapt in using English as the primary tool to communicate. It includes learners presenting their academic work. This activity leads to evaluating the speaking skills, as speaking is the output from the input of understanding information. Miskam & Saidalvi (2019) investigated that academic presentation is the result of the learning process that takes place during learners' preparation.

Although there is a study conducted by Koad, (2021) on factors influencing Thai learners' need to struggle to master English such as beliefs, learning strategies, and autonomy, these underlying factors were also significant predictors of Thai learners' proficiency levels in overall and in specific skills.

5.5.3 Negotiation

Speaking in English for a specific purpose required a different method. EMI provides learners with this opportunity. Some learners figured out the benefits of using English as a communication tool for their future job applications. A study by Shen (2013) concluded that most learners strive to understand their subject disciplines. This is because of inadequate linguistic proficiency and their academic reading difficulties could be broadly attributed to a deficiency in their language ability and their inability to comprehend content. Also, Toro, Camacho-Minuche, Pinza-Tapia & Paredes (2019) investigated that strategies to help students develop communicative competencies learners are necessarily provided by teachers.

5.5.4 Small Talk

The situation that may happen in the EMI environment is the use of the first language of the learners. Including small talk with friends does remain effective in EMI. Hence, learners must be aware of the purposive use of language that required proficiency. Although the first language is used for informal conversation, language matters in the exchange of information. Pecorari (2020) stated that understanding the

purpose of language integration is more important for learners to switch the use of language.

5.6 The extent the Thai tertiary-level Engineering teachers use EMI

5.6.1 Greeting and leave-taking

Teachers are the model in every single act. Hence, the EMI environment needs special action conducted by teachers including greeting and leave-taking. Teachers' practices also speak a lot and their influence on learners' mindsets becomes effective. Jiang, Zhang & May (2019) argued that teachers need to consider learners' communicative needs and address the limitations of the current EMI practices.

5.6.2 Praising

The conversation made between teachers and learners influenced the effectiveness of EMI. Hence, in each opportunity, teachers must utilize several strategies to be able to send the message that helps learners understand such as giving motivation to learners. Farrell (2020) added that experience combined with systematic reflection can lead to professional growth so that teachers can become more effective language teachers.

5.6.3 Instructing content and language

Teachers need to change from time to time. In the context of EMI implemented in Engineering classrooms, teachers must adapt themselves to the vocabulary and terms that are difficult to be discussed without understanding the concept. One part of effectiveness of learning is the delivery method. In the context of EMI, teachers play an essential role to help learners understand the phenomena that happened. Hence, delivery is the key to managing the perception. Considering the success of message delivery or using difficult terms to describe the findings would make others confused about the objectives of implementing EMI. Qiu & Fang (2022) highlighted that the instruction should no more be teacher dominated. Students favored interactive and efficient EMI courses with a primary focus on content. The implementation of the EMI curriculum and the development of EMI teachers' expertise are necessary.

5.6.4 Giving Direction

To keep learners learning, giving direction is also important for letting learners keep learning. However, teachers must pay attention to the language used in this activity. Teachers must appear to give direction not necessarily in their native language. It is rather to help learners connect to the concept establishment. Doiz & Lasagabaster (2013) proposed that teachers frequently use English language by combining different types of discourse functions such as online applications to achieve their communicative goals and pave the way for students' acquisition of learning is necessary.

5.6.5 Reviewing lesson

One trendy concept is the current global situation of higher education, "the process of integrating an international, intercultural or global dimension into the purpose, functions or delivery of higher education at the institutional and national levels (Knight, 2008). In including the activity of reviewing the lesson and preparing teaching activities, teachers must use English language to send and deliver the suggestion and messages for learners to improve their learning skills.

5.6.6 Giving meaning to Technical Engineering words

Ploettner (2019) argued that the misconception of understanding the technical engineering terms can only be solved by examining EMI training processes. This is for the better-informed future teachers' initiatives and the need for the development of EMI teacher quality as the issue is not only the accuracy of translation of the terms. It involved the pedagogical content knowledge where teachers require to understand the concept before sharing it with the learners. And the process of teaching needs different methods and strategies. Sah (2022) continues the argument that the language which is being developed/practiced in the classroom becomes a source of learning where the key is to be getting the meaning of the concept through English language.

On the other hand, Engineering textbooks are in English, but some do not cover the content or fit Thai learners. Therefore, teachers need to scan the suitable ones and recommended them to students. Syakur (2020) also added that learning media such as social media can be an alternative way to provide learners with adequate media that meet learners learning desires.

5.7 Implication of Research

This research has examined the perceptions of Thai Tertiary-Level Engineering Learners and Teachers towards English as Medium Instruction. The findings make a compelling description of EMI implementation. First, the findings showed that learners need to study harder once learning a subject in English in the international program. This shows that the learners decide to want to have a good level of confidence in their English ability and still did not feel that their English skills is sufficient for EMI classes. In addition, they felt that EMI classes were far more interactive and satisfactory than the regular program. This response indicated that they found EMI interesting and that they were willing to learn through English.

Furthermore, many learners were convinced that EMI classes helped provide them with a positive impact on their professional careers in the future. This also showed that a lot of students were in favor of all classes being taught in English. In brief, from the learners' perceptions, the case for EMI was overwhelming. Surprisingly, the majority of the students still preferred EMI to be maintained. Also, regarding the use of Thai language in EMI classes, they still wanted to have Thai language to be used for explaining difficult materials.

This research has shown that most teachers feel that they have sufficient English ability for EMI classes and that EMI classes are satisfactory. They did promote interaction in class or improve their English skills between learners and teachers. As the findings of this research show, teachers still believe in the importance of EMI and believe that it should be retained. The faculty of engineering will likewise adhere to the notion that their students would benefit from EMI. Under the circumstances, it is imperative that the university thoroughly examine its current EMI policies and overhaul related practices. Thus, the following suggestions for better EMI in Thai tertiary-level engineering learners and teachers can be made:

Learners' and teachers' involvement in EMI must be compulsory. It should be encouraged with sufficient benefits for them to see. There are learners and teachers with adequate English ability for EMI classes. There are others who believe in the importance of learning and teaching in their native language. University must respect

different opinions among members and make efforts to find ways to accommodate their concerns.

Secondly, English Language Training (ELT) for both learners and teachers must be strengthened and redirected for EMI purposes. Students' English levels need to be measured before and after EMI, and ELT for weak skills must be continuously provided and incorporated into EMI classes. In other words, a more systematic ELT for EMI purposes must be constructed and implemented. For example, the research results show that the learners felt that listening was their weakest skill and speaking was the skill that improved least through EMI. These impressions need to be substantiated by dependable testing, and if they are proven accurate, an appropriate ELT system must be in place to address the issues.

Moreover, within EMI classes, a collaboration between content instructors and ELT educators is necessary. Under such partnership, instruction and assignments should be enhanced to improve students' English ability. In addition, a university must consistently offer ELT for teachers through such programs as workshops for effective EMI strategies and useful classroom English, and faculty with extensive EMI experience may be enlisted for mentoring and supporting junior faculty.

In Thai local settings, Galloway & Sahan (2021) found significant differences between teachers and learners in terms of the amount of English used in EMI courses, with teachers reporting more English use than students. Meanwhile, Tang (2020) figured out that teachers seemed to have lower expectations in terms of students' academic writing abilities. This implies that the English competence of students is a reality that needs to improve. However, this research found that both teachers and learners supported an English-only approach to EMI because it would help improve English learning and their first language use in EMI classes as it would help content understanding. Overall, EMI stakeholders should appear to support moderate use of first language to support instruction in English, such as first language use to clarify subject-specific vocabulary (Baker & Hüttner, 2019)

5.8 Suggestions and Recommendations

This section highlights suggestions and recommendations. The suggestion and recommendation of this research is divided into two parts as follows.

5.8.1 Recommendation for future research

1) This research has examined the perception of EMI in Thai tertiary-level engineering learners and teachers' points of view. To have a more complete view of the EMI implementation, the perspectives of faculty and administrators also need to be examined.

2) This research has examined the top ten ranked universities across the nation. Teachers who attended in the classroom have qualified criteria and especially facilities provided to support learners. Therefore, to have a more comprehensive view of EMI in Thai tertiary-level engineering universities, studies need to be more inclusive of all types of engineering universities.

3) This research recommended that it will also be worthwhile to do comparison studies of engineering universities with EMI policies implementation in other countries for a better understanding of the current worldwide trend of EMI in engineering universities.

5.8.2 Suggestions for pedagogical improvement

1) This research suggests that higher education policy regarding EMI should take into account the values and beliefs of students as potential adopters of EMI and that a learning environment that strongly supports integrative and mastery goals and minimize conditions that cause language anxiety would encourage the desire to study in EMI.

2) This research encouraged that it is important to call for more consideration of the type of support students need, both at the entrance and throughout the program. Since this research identified low English proficiency as a challenge in EMI classes hence, support structures for students to overcome specific issues on understanding vocabulary, lectures, and exams in English.

3) This research highlighted the need for increased collaboration between content and language instructors as well as a lack of teacher training. The collaboration among EAP/ESP teachers would benefit from discipline-specific

training opportunities with a focus on content knowledge, and that content teacher would benefit from training designed to raise awareness of language-related issues in EMI.

4) This research suggests 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, again, is something that may have to be taken into account for helping learners match with the local setting challenge.
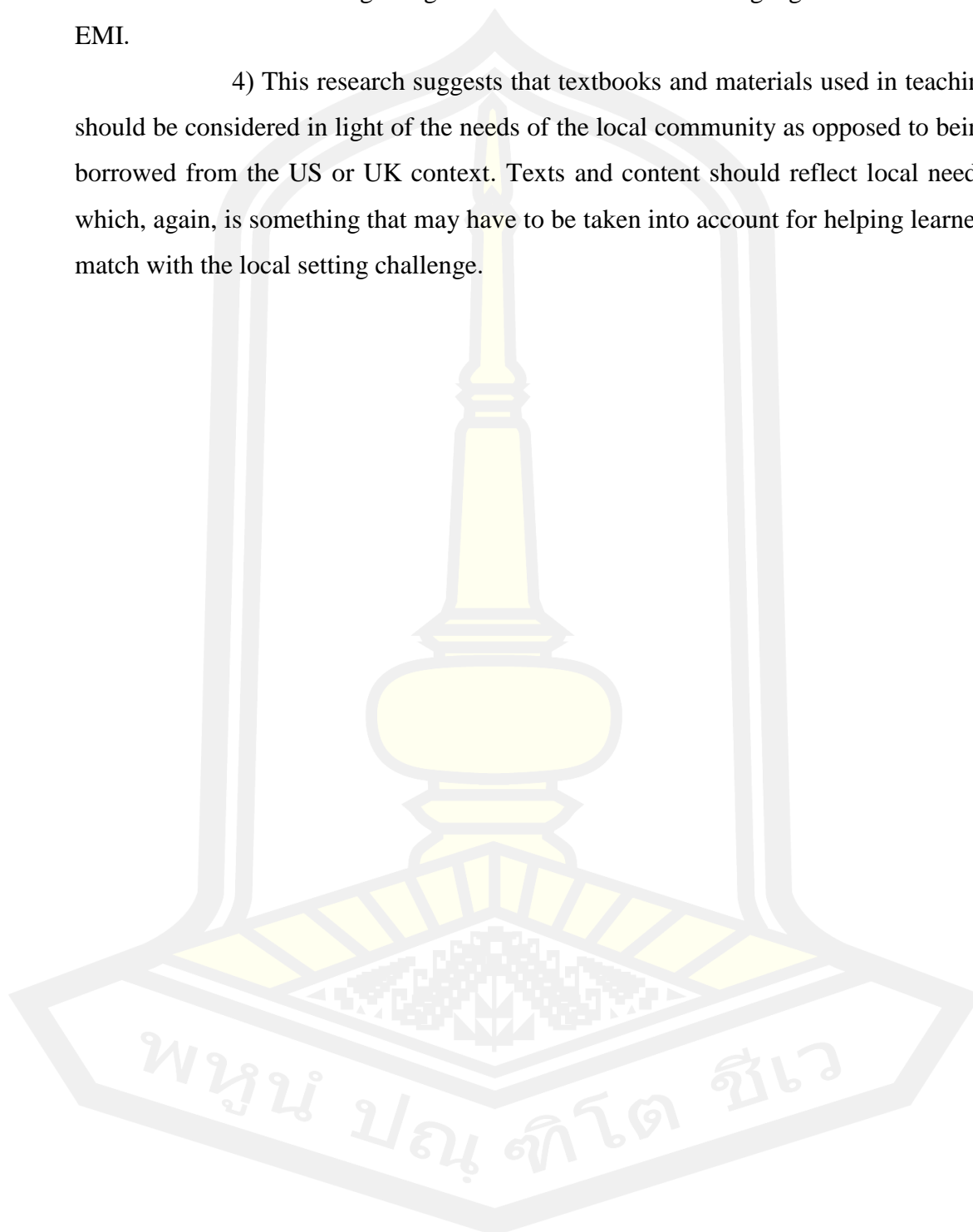
REFERENCES
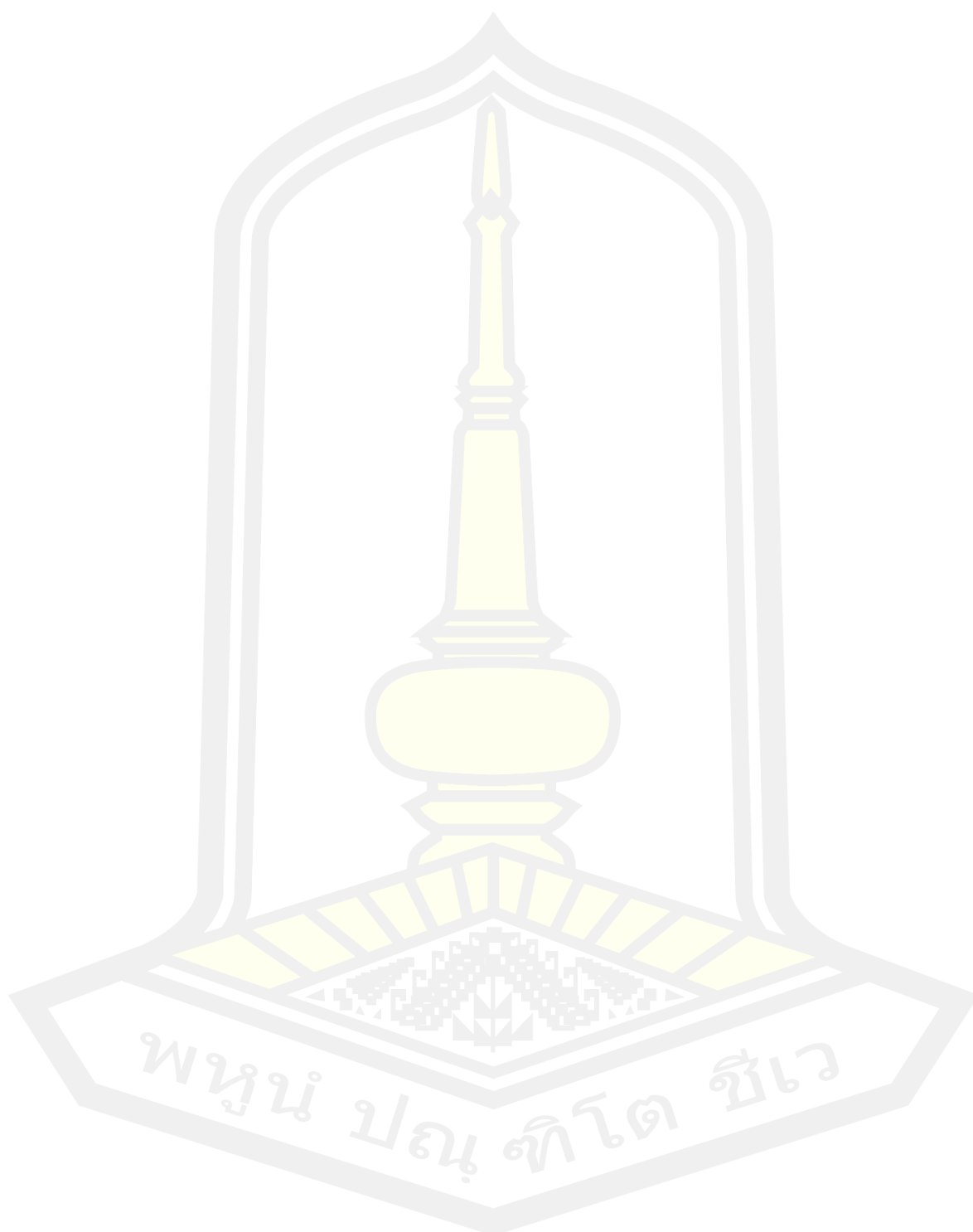
Bibliography

Ahmad, S. Z. (2015). Evaluating student satisfaction of quality at international branch campuses. *Assessment & evaluation in higher education*, 40(4), 488-507.

Aizawa, I., Rose, H., Thompson, G., & Curle, S. (2020). Beyond the threshold: Exploring English language proficiency, linguistic challenges, and academic language skills of Japanese students in an English medium instruction programme. *Language Teaching Research*, 1362168820965510.

Alfehaid, A. (2018). Integrating CALL with analytical rubrics for developing speaking skills. *Computer-Assisted Language Learning E-lectronic Journal*, 19(2), 166-186.

Atik, E. (2010). *Perceptions of students towards English medium instruction at tertiary level: the case of a Turkish private university.* Master's thesis, Middle East Technical University.

Baker, W., & Hüttner, J. (2019). We are not the language police": Comparing multilingual EMI programmes in Europe and Asia. *International Journal of Applied Linguistics*, 29(1), 78-94.

Basşibek et al. (2014). Lecturers' Perception of English Medium Instruction at Engineering Departments of Higher Education: A study on Partial English Medium Instruction at Some State Universities in Turkey. *Social and Behavioral Sciences*, 116, 1819-1825.

Bekteshi, E., & Xhaferi, B. (2020). An Analysis of English for Specific Purposes among University Students. Educational Process. International Journal, 9(2), 90-102.

Bhuiyan, M. S. S. (2021). Necessity of ESP Syllabus in the English Language Education of Engineering Students in Bangladesh. *International Journal of Educational Feedback and Applied Linguistics*, 1(1), 31-38.

Bienzobas, A. D., Herrarte, D. L., & Vázquez, V. P. (2019). The integration of language and content in English-medium instruction courses: Lecturers' beliefs and practices. *Ibérica: Revista de la Asociación Europea de Lenguas para Fines Específicos (AELFE)*, (38), 151-176.

Boonsuk, Y. (2016). *Thai university students, teachers and program administrators, construction of naiveness in English language teaching.* Doctoral dissertation, University of Southampton.

Bradford, A. (2013). *English-medium degree programs in Japanese universities: Learning from the European experience.* Asian Education and Development Studies.

Brown, H. (2016). Current trends in English-medium instruction at universities in Japan. *OnCue Journal*, 10(1), 3-20.

Erliana, S. (2018). *Secondary High School English Teachers' Perception toward English as Medium Instruction.*

Ernesto Macaro (2018). *English Medium Instruction*: Oxford University Press, 23 (2), 1.

Bunwirat, N. (2017). English language teaching in AEC era: A case study of universities in the upper northern region of Thailand. *FEU Academic Review*, 11(2), 282-282.

Bynom, A. (2000). *Team teaching. In English Teaching Forum.* US Department of State.

Byun, K., Chu, H., Kim, M., Park, I., Kim, S., & Jung, J. (2011). English-medium teaching in Korean higher education: Policy debates and reality. *Higher Education*, 62(4), 431-449.

Chalapati, S. (2007). Internationalisation of higher education in Thailand: case studies of two English-medium business graduate programs. *Doctoral dissertation, RMIT University.*

Channa, M. et al. (2012). Students' Attitudes towards Teachers' using Activities in EFL class. *International Journal of Academic Research in Business and Social Sciences*. 2 (5), 158-164.

Cho, D. W. (2012). English-medium instruction in the university context of Korea: Tradeoff between teaching outcomes and media-initiated university ranking. *Journal of Asia TEFL*, 9(4).

Choomthong, D. (2014). Preparing Thai students' English for the ASEAN Economic Community: Some pedagogical implications and trends. *LEARN Journal: Language Education and Acquisition Research Network*, 7(1), 45-57.

Choudaha, R., & De Wit, H. (2014). Challenges and opportunities for global student mobility in the future: A comparative and critical analysis. *Internationalisation of higher education and global mobility*, 23.

Chung, J., & Choi, T. (2016). *English education policies in South Korea: Planned and enacted.* In English language education policy in Asia (pp. 281-299). Springer, Cham.

Coleman, J. A. (2006). English-medium teaching in European higher education. *Language teaching*, 39 (1), 1-14.

Creswell, W, J. (2017). *Research Design: Qualitative, Quantitative, and Mixed Methods Approach.* SAGE Publication.

Cultural, I. (2011). Universal Periodic Review (12 th session, 3-14 October 2011) Contribution of UNESCO THAILAND. *Education*, 4(52023).

Dafouz, E. & Camacho-Miñano, M. M. (2016). Exploring the impact of English-medium instruction on university student academic achievement: The case of accounting. *English for Specific Purposes*, 44, 57-67.

Darasawang, P. (2007). *English language teaching and education in Thailand: A decade of change (pp. 187-204).* Cambridge Scholars Publishing.

Dearden, J. (2014). *English as a medium of instruction-a growing global phenomenon.* British Council.

Dimova, S., Hultgren, A. K., & Jensen, C. (Eds.). (2015). *English-medium instruction in European higher education (Vol. 4).* Walter de Gruyter GmbH & Co KG.

Doiz, A., & Lasagabaster, D. (2013). An analysis of the use of cognitive discourse functions in English-medium history teaching at university. *English for Specific Purposes*, 62, 58-69.

Dudley-Evans, T. (2020). *The debate over Milton Friedman's theoretical framework: An applied linguist's view.* In Economics and language (pp. 132-152). Routledge.

Dumrongkiat, L. (2016). *Ex-WTO chief decries Thai education.* Bangkok Post. Retrieved on Feb, 2022.

Duong, V. A., & Chua, C. S. (2016). English as a symbol of internationalization in higher education: A case study of Vietnam. *Higher Education Research & Development*, 35(4), 669-683.

Earls, C. W. (2016). *Evolving agendas in European English-medium higher education: Interculturality, multilingualism and language policy*. Springer.

Eaves, M. (2011). The relevance of learning styles for international pedagogy in higher education. *Teachers and Teaching*, 17(6), 677-691.

Evan, S., Morrison, B. (2016). English-medium instruction in Hong Kong: illuminating grey area n school policies and classroom practices. *Current Issues in Language Planning*, 18 (3), 1-20.

Farrell, T. S. (2020). Professional development through reflective practice for English-medium instruction (EMI) teachers. *International Journal of Bilingual Education and Bilingualism*, 23(3), 277-286.

Fernández-Costales. (2017a). Assessing students' perceptions regarding English Medium Instruction in Higher Education. *Didácita*, 29. 43-63.

Fernández-Costales, A. (2017b). Assessing students' perceptions regarding English Medium Instruction in Higher Education. *Didáctica: Lengua y Literatura,* 29, 43.

Galloway, N., & Ruegg, R. (2020). The provision of student support on English Medium Instruction programmes in Japan and China. *Journal of English for Academic Purposes*, 45, 100846.

Galloway, N., & Sahan, K. (2021). *An investigation into English Medium Instruction in higher education in Thailand and Vietnam*. British Council.

Green, A., Fangqing, W., Cochrane, P., Dyson, J., & Paun, C. (2012). English spreads as teaching language in universities worldwide. *University World News*, 229.

Hamid, M. O., & Jahan, I. (2015). Language, identity, and social divides: Medium of instruction debates in Bangladeshi print media. *Comparative Education Review*, 59(1), 75-101.

Hamid, M. O., Nguyen, H. T. M., & Baldauf Jr, R. B. (2013). Medium of instruction in Asia: Context, processes and outcomes. *Current Issues in Language Planning*, 14(1), 1-15.

Hashimoto, K., & Lee, J. S. (2011). Heritage-language literacy practices: A case study of three Japanese American families. *Bilingual Research Journal*, 34(2), 161-184.

Hellekjær, G. O. (2010). *Lecture comprehension in English-medium higher education. HERMES-Journal of Language and Communication in Business, (45), 11-34.*

Hejazi, S. Y., & Zare-ee, A. (2017). Graduate and Undergraduate Iranian Students' Views on English as the Medium of Instruction. *In the Name of God*, 61.

Hengsadeekul, C., Koul, R., & Kaewkuekool, S. (2014). Motivational orientation and preference for English-medium programs in Thailand. *International Journal of Educational Research*, 66, 35-44.

Horie, M. (2002). The Internationalization of higher education in Japan in the 1990s: A reconsideration. *Higher Education*, 43, 65-84.

Hu, G., & Lei, J. (2014). English-medium instruction in Chinese higher education: A case study. *Higher Education*, 67(5), 551-567.

Hu, G., & McKay, S. L. (2012). English language education in East Asia: Some recent developments. *Journal of Multilingual and Multicultural Development*, 33(4), 345-362.

Husain, F.M. and Mahfoodh, O. H. A. (2021). English for Professionals students'' perceptions of the relevance of internship to their undergraduate courses and career choices. *Higher Education, Skills and Work-Based Learning*, 11 (5), 1068-1088. https://doi.org/10.1108/HESWBL-02-2020-0020."

Ibrahim, J. (2001). *The implementation of EMI (English Medium Instruction) in Indonesian Universities: Its opportunities, its threats, its problems, and its possible solutions. k@ ta lama, 3(2), 121-138.*

Jensen, C., & Thongerson, J. (2011). Danish University lectures' attitudes towards English as the medium of instruction. *Ibérica*, 22. 13-33.

Jindapitak, N. (2019). English as an ASEAN lingua franca and the role of nativeness in English education in Thailand: Moving toward the ASEAN Economic Community (AEC). *English today*, 35(2), 36-41.

Jowi, J. O. (2009). Internationalization of higher education in Africa: Developments, emerging trends, issues and policy implications. *Higher education policy*, 22(3), 263-281.

Kachru, B. B. (1992). Teaching world englishes. *The other tongue: English across cultures*, *2*(2), 355-365.

Kantavong, P. (2015a). English as Medium of Instruction for Subject Courses in Terriary Education: Lesson Learned from Thai Undergraduate Students. *Asian Social Sciences*. 11 (27), 84-89.

Kantavong, P. (2015b). English as Medium of Instruction for Subject Courses in Tertiary Education: Lessons Learned from Thai Undergraduate Students. *Asian Social Science*, 11, 27, 84.

Karnchanachari, S. (2019). An investigation into learners' willingness to communicate in English in the classroom: A study of Thai EFL students in the Thai and international programs. *REFLections*, 26(2), 83-106.

Kaur, A., Young, D., & Kirkpatrick, R. (2016). *English education policy in Thailand: Why the poor results? In English language education policy in Asia (pp. 345-361)*. Springer, Cham.

Kim, E. G., Kweon, S. O., & Kim, J. (2017). Korean engineering students' perceptions of English-medium instruction (EMI) and L1 use in EMI classes. *Journal of Multilingual and Multicultural Development*, 38(2), 130-145.

Kim, K. R. (2011). Korean professor and student perceptions of the efficacy of English-medium instruction. *Linguistic Research*, 28(3), 711-741.

Kirkpatrick, R. (2012). English education in Thailand: 2012. *Asian EFL Journal*, 61, 24-40.

Knight, J. (1997). Internationalisation of higher education: A conceptual framework. In J. Knight & H. De Wit (Eds.), *Internationalization of higher education in Asia Pacific countries (pp. 5-19). Amsterdam, Netherlands: Luna Negra.*

Knight, J. (2008a). *Higher education in Turmoil: The Changing world of internationalization.* Rotterdam, Netherlands: Sense.

Knight, J. (2008b). *Higher education in Turmoil. Rotterdam: Sense Publishers.*

Knight, J. (2013). The changing landscape of higher education internationalisation–for better or worse?. *Perspectives: Policy and practice in higher education,* 17(3), 84-90.

Kung, F. W. (2013). Bilingualism and the second generation: Investigating the effects and methods of heritage language maintenance and second language acquisition. *英語教學期刊,* 37(3), 107-145.

Kuwamura, A. (2019). English-medium instruction and the expanding role of language educators. Diversity and inclusion. *Tokyo: JALT*.(https://jalt-publications. org/sites/default/files/pdf-article/jalt2018-pcp-003. pdf).

Kym, I., & Kym, M. H. (2014). Students' perceptions of EMI in higher education in Korea. *Journal of Asia TEFL*, 11(2).

Kyria Rebeca Finardi. (2016). *English in Brazil:Views, policies and programs*. Brazil. Editora da Universidade Estadual de Londrina.

Lane, J.E. (2015). *Higher education internatioanlisation: Why government care*. In E. Ullberge (Ed). New perspectives on internatioanlisation and competitiveness (pp.17-30). Cham, Switzerland: Springer International Publishing.

Lasagabaster, D. (2016). The relationship between motivation, gender, L1 and possible selves in English-medium instruction. *International Journal of Multilingualism*, 13(3), 315-332.

Lavankura, P. (2013). Internationalizing higher education in Thailand: Government and university responses. *Journal of studies in international education,* 17(5), 663-676.

Le, D. M. (2012). English as a medium of instruction at tertiary education system in Vietnam. *Journal of Asia TEFL*, 9(2).

Ljosland, R. (2011). English as an Academic Lingua Franca: Language policies and multilingual practices in a Norwegian University*, Journal of Pragmatics*, 43 (4), 991-1004.

Liu, Y. (2019). Exploring bilingual learners' desires in English-medium studies: evidence from a Thai private bilingual school. *International Journal of Bilingual Education and Bilingualism*, 1-20.

Luanganggoon, N., Phantharakphong, P., Sae-Joo, P., & Huntula, J. (2018). The content and language learning implementation: Speaking skills in graduate classes. *AsTEN Journal of Teacher Education, Special Issue "Pedagogy*", 55-64.

Luanganggoon, N. (2020). Content and Language Integrated Learning (CLIL) teaching practices in Thailand Higher Education. *The Asian ESP Journal*, 16(4), 233-258.

Macaro, E., Akincioglu, M. (2018). Turkish university students' perceptions about English medium instruction: Exploring year group, gender, university type as variables. *Journal of Multilingual and Multicultural Development,* 39/3: 256-270.

Macaro, E., Curle, S., Pun, J., An, J., & Dearden, J. (2018). A systematic review of English medium instruction in higher education. *Language Teaching*, 51(1), 36-76.

Macaro, E. (2015). English medium instruction: Time to start asking some difficult questions. *Modern English Teacher*, 24(2), 4-7.

Macaro, E. (2018). *English medium instruction.* Oxford University Press.

Maiworm, F., & Wächter, B. (2020). *English-language-taught: Degree programmes in European higher education.* Bonn: Lemmens.

Mantasiah, R. (2020). Semantic Feature Analysis Model: Linguistics Approach in Foreign Language Learning Material Development. *International Journal of Instruction*, 13(1), 185-196.

Martinez, R. (2016). *English as a Medium of Instruction (EMI) in Brazilian higher education: challenges and opportunities*. English in Brazil: views, policies and programs, 191-228.

McDonough, K., & Chaikitmongkol, W. (2007). Teachers' and learners' reactions to a task-based EFL course in Thailand. *Tesol Quarterly*, 41(1), 107-132.

Metz, M. (2002). Pedagogical content knowledge for teaching critical language awareness: The importance of valuing student knowledge. *Urban Education,* 56(9), 1456-1484.

MEXT (Ministry of Education, Culture, Sports, S. and T. (2014). *Heisei 26 nendo no daigaku ni okeru kyōiku naiyōtō no kaikaku jōkyō ni tsuite (gaiyō)* [About the state of affairs regarding university reforms to education in 2015]. Tokyo: MEXT. http://www.mext.go.jp/a_menu/koutou/daigaku/ 04052801/__icsFiles/afieldfile/2.

MEXT (Ministry of Education, Culture, Sports, S. and T. (2018). *Heisei 30 eigo kyoiku jishi jyokyo chosa (koutougakkou) No kekka [2018 results of English education implementation survey (high school).* Retrieved from http://www.mext.go.jp/ component/a_menu/education/detail/__icsFiles/afieldfile/2019/04/17/1415043_04 _1.p.

Ministry of Education. (2012). *Third "1-Tambon-1 Scholarship" given the nod "in principle."* Retrieved from http://www.en.moe.go.th/index.php.

Ministry of University Affairs. (1990). *Summary of the long-range higher education plan 1990-2004.* Bangkok, Thailand: Author.

Ministry of University Affairs. (2003). *International programs in Thailand. Bangkok,* Thailand: Parb-Pim Limited Partnership.

Miskam, N. N., & Saidalvi, A. (2019). Investigating English language speaking anxiety among Malaysian undergraduate learners. *Asian Social Science*, 15(1), 1-7.

Nguyen, H. T., Hamid, M. O., & Moni, K. (2016). English-medium instruction and self-governance in higher education: The journey of a Vietnamese university through the institutional autonomy regime. *Higher Education*, 72(5), 669-683.

Nunan, D. (2003). The impact of English as a global language on educational policies and practices in the Asia-Pacific Region. *TESOL quarterly*, 37(4), 589-613.

Office of the Higher Education Commission. (2011). *Foreign students in Thai higher education institutions 2010.* Bangkok, Thailand: Bangkok Block Ltd.

Oxford learner's dictionary online Retrieved Mar 6, 2020 https://www.oxfordlearnersdictionaries.com/definition/english/perception?q= perception

Ozer, O. (2020). Lecturers' experiences with English-medium instruction in a state university in Turkey: Practices and challenges. *Issues in Educational Research,* 30(2), 612-634.

Paltridge, B. (2012). Genre and English for specific purposes. *The handbook of English for specific purposes*, 347-366.

Pawapatcharaudom, R. (2007). *An investigation of Thai students' English language problems and their learning strategies in the international program at Mahidol University (Doctoral dissertation, MA Thesis: King Mongkut's Institute of Technology North Bangkok).*

Pecorari, D. (2020). *English medium instruction: Disintegrating language and content?.* In Integrating content and language in multilingual universities (pp. 15-36). Springer, Cham.

Phantharakphong, P., Sudathip, P., & Tang, K. N. (2019). The relationship between reading skills and English proficiency of higher education students: Using online practice program. *Asian EFL Journal*, 23(3), 80-103.

Pitsuwan, S. (2014). *English as a powerful instrument of community building in East Asia. In TESOL 2014 International Convention and English Language Expo.*

Prabjandee, D. (2020). Narratives of learning to become English teachers in Thailand: developing identity through a teacher education program. *Teacher Development*, 24(1), 71-87.

Rackeviciene, S., Janulevičienė, V., & Mockiene, L. (2019). English for specific purposes and the second foreign language: Reaching beyond language training in BA Philology study programme. *Journal of Teaching English for Specific and Academic Purposes*, 135-146.

Rogier, D. (2012). *The effects of English-medium instruction on language proficiency of students enrolled in higher education in the UAE.* Doctoral dissertation: The University of Exeter.

Sah, P. K. (2022). English medium instruction in South Asia's multilingual schools: unpacking the dynamics of ideological orientations, policy/practices, and democratic questions. *International Journal of Bilingual Education and Bilingualism*, 25(2), 742-755.

Selvi, A. F. (2014). Myths and misconceptions about nonnative English speakers in the TESOL (NNEST) movement. *TESOL Journal*, 5(3), 573-611.

Shen, M. Y. (2013). Toward an Understanding of Technical University EFL Learners' Academic Reading Difficulties, Strategies, and Needs. Electronic *Journal of Foreign Language Teaching*, 10(1).

Shimmi, Y. (2014). International visiting scholars: Brain-circulation and internationalization. *International Higher Education*, (77), 9-11.

Shohamy, E. (2006). *Language policy: Hidden agendas and new approaches.* Routledge.

Spolsky, B. (2009). *Language management.* Cambridge: Cambridge University Press.

Sridhanyarat, K., Pathong, S., Suranakkharin, T., & Ammaralikit, A. (2021). The Development of STEP, the CEFR-Based English Proficiency Test. *English Language Teaching*, 14(7), 95-106.

Syakur, A. (2020). The Effectiveness of English Learning Media through Google Classroom in Higher Education. *Britain International of Linguistics Arts and Education (BIoLAE) Journal*, 2(1), 475-483.

Taguchi, N. (2014). English-medium education in the global society. *International Review of Applied Linguistics in Language Teaching*, 52(2), 89-98.

Tamtam, A. G., Gallagher, F., Olabi, A. G., & Naher, S. (2012). A comparative study of the implementation of EMI in Europe, Asia and Africa. *Procedia-Social and Behavioral Sciences*, 47, 1417-1425.

Tang, K. N. (2020). Challenges and Importance of Teaching English as a Medium of Instruction in Thailand International College. *Journal of English as an International Language*, 15(2), 97-118.

Tange, H. (2010). Caught in the Tower of Babel: university lecturers' experiences with internationalisation. *Language and Intercultural Communication*, 10(2), 137-149.

Tella, S., Räsänen, A., & Vähäpassi, A. (1999). *Teaching Through a Foreign Language: From Tool to Empowering Mediator.* An Evaluation of 15 Finnish Polytechnic and UniŽversity Level Programmes, with a Special View to Language and Communication.

Thompson, G., Aizawa, I., Curle, S., & Rose, H. (2022). Exploring the role of self-efficacy beliefs and learner success in English medium instruction. *International Journal of Bilingual Education and Bilingualism*, 25(1), 196-209.

Towards a Learning Society in Thailand: An introduction Education in Thailand, Ministry of Education. Retrieved April 12, 2020 from https://www.bic.moe.go.th/images/stories/book/ed-eng-series/intro-ed08.pdf.

Troudi, S. (2009). EFL teachers' views of English language assessment in higher education in the United Arab Emirates and Kuwait. *Tesol Quarterly*, 43(3), 546-555.

Wächter, B., & Maiworm, F. (2018). *English-taught programmes in European higher education. ACA Papers on International Cooperation in Education.* Bonn: Lemmens.

Wanphet, P., & Tantawy, N. (2018). Effectiveness of the policy of English as a medium of instruction: Perspectives and outcomes from the instructors and students of university science courses at a university in the UAE. *Educational Research for Policy and Practice*, 17(2), 145-172.

Wilawan, J. (1999). *Trends of international graduate programs in higher education institutions under the jurisdiction of the Ministry of University Affairs in the next decade (B.E. 2543-2552).* Unpublished Master of Education thesis, Chulalongkorn University, Bangkok, Thailan.

Wiriyachitra, A. (2009). *English language learning and teaching in Thailand in this decade.* APEC Knowledge Bank.

Wong, M. S., & Wu, S. F. (2011). *Internationalization of higher education in East Asia: Issues, implications, and inquiries.* In The internationalization of East Asian higher education (pp. 197-213). Palgrave Macmillan, New York.

Woschank, M., & Pacher, C. (2020). Teaching and learning methods in the context of industrial logistics engineering education. *Procedia Manufacturing*, 51, 1709-1716.

Wu, J., & Lou, Y. (2018). Needs analysis of Chinese chemical engineering and technology undergraduate students in Yangtze University in English for specific purposes. *Creative Education*, 9(15), 2592.

Wu, P., Wang, S. G., Jiang, X., Zeng, D. J., Guan, Y. X., & Li, X. F. (2010). *Gaodeng xuexiao shuangyu jiaoxue de xianzhuang yanjiu he shijian tansuo [An exploratory study of English-medium instruction in Chinese higher education].* Beijing: Higher Education Press.

Xu, L. & Chuaychoowong, M. (2017). *A case study of teachers' beliefs and practices with English-Medium Instruction (EMI) at Mae Fah Luang University.* Online Proceedings of the International Conference. DRAL 3/19th, 264-279.

Yang, M., O'Sullivan, P. S., Irby, D. M., Chen, Z., Lin, C., & Lin, C. (2019). Challenges and adaptations in implementing an English-medium medical program: a case study in China. *BMC medical education*, 19(1), 1-8.

Yang, W. (2015). Content and language integrated learning next in Asia: Evidence of learners' achievement in CLIL education from a Taiwan tertiary degree programme. *International Journal of Bilingual Education and Bilingualism*, 18(4), 361-382.

Yuan, C., Wang, L., & Eagle, J. (2019). Empowering English language learners through digital literacies: Research, complexities, and implications. *Media and Communication*, 7(2), 128-136.

Zare-ee, A. & Hajazi, S. (2017). University Teachers' Views on English as the Medium of Instruction in an Iranian Higher Education Institution. *International Peer Reviewed Journal*, 8 (4) 467-485.

Zhang, M. (2021). Students' attitudes and perceptions towards three EMI courses in mainland China. *Language culture and curriculum*, 35, 200-216.

Zhang, Z. (2018). *English-medium instruction policies in China: Internationalisation of higher education. Journal of Multilingual and Multicultural Development,* 39(6), 542-555.
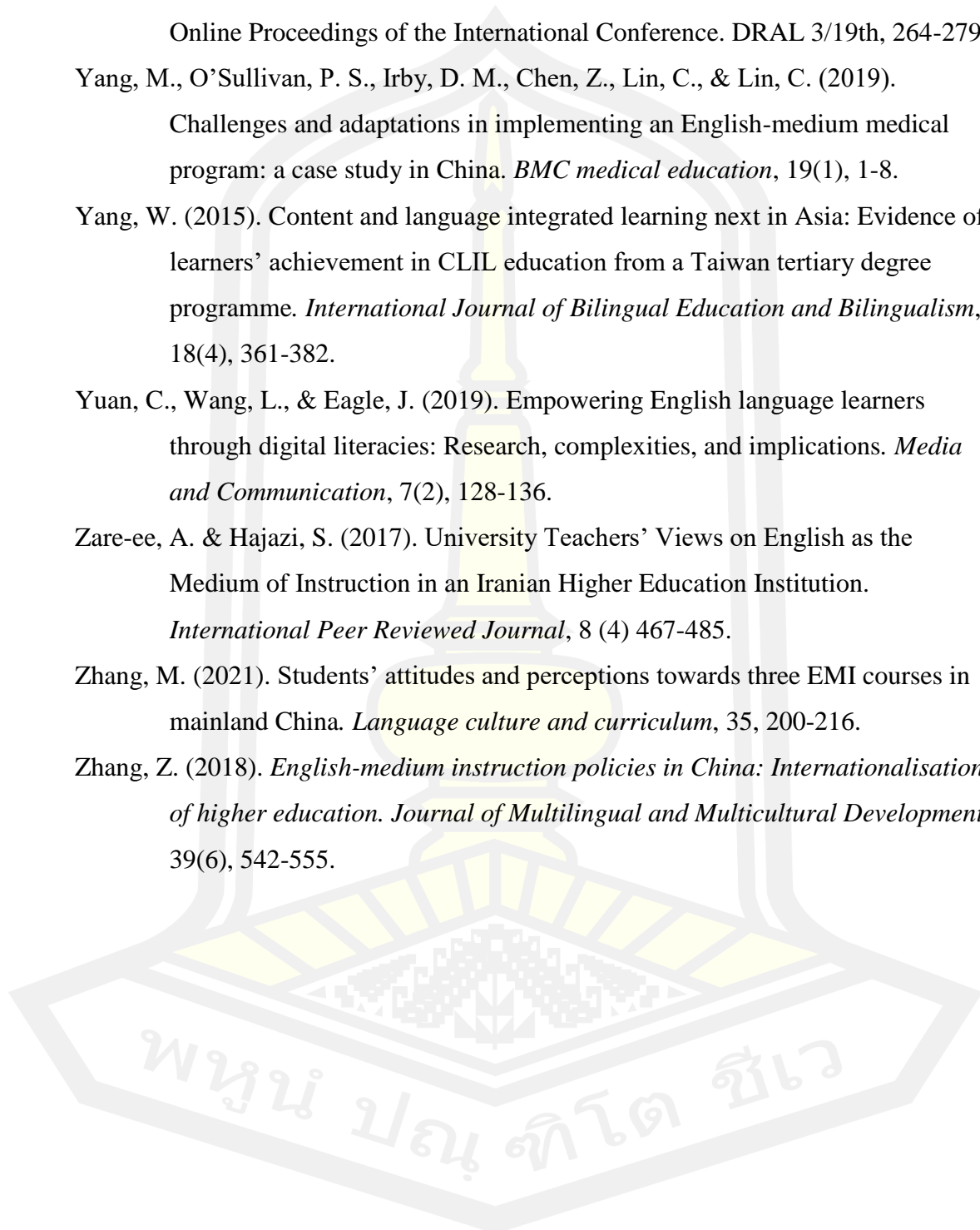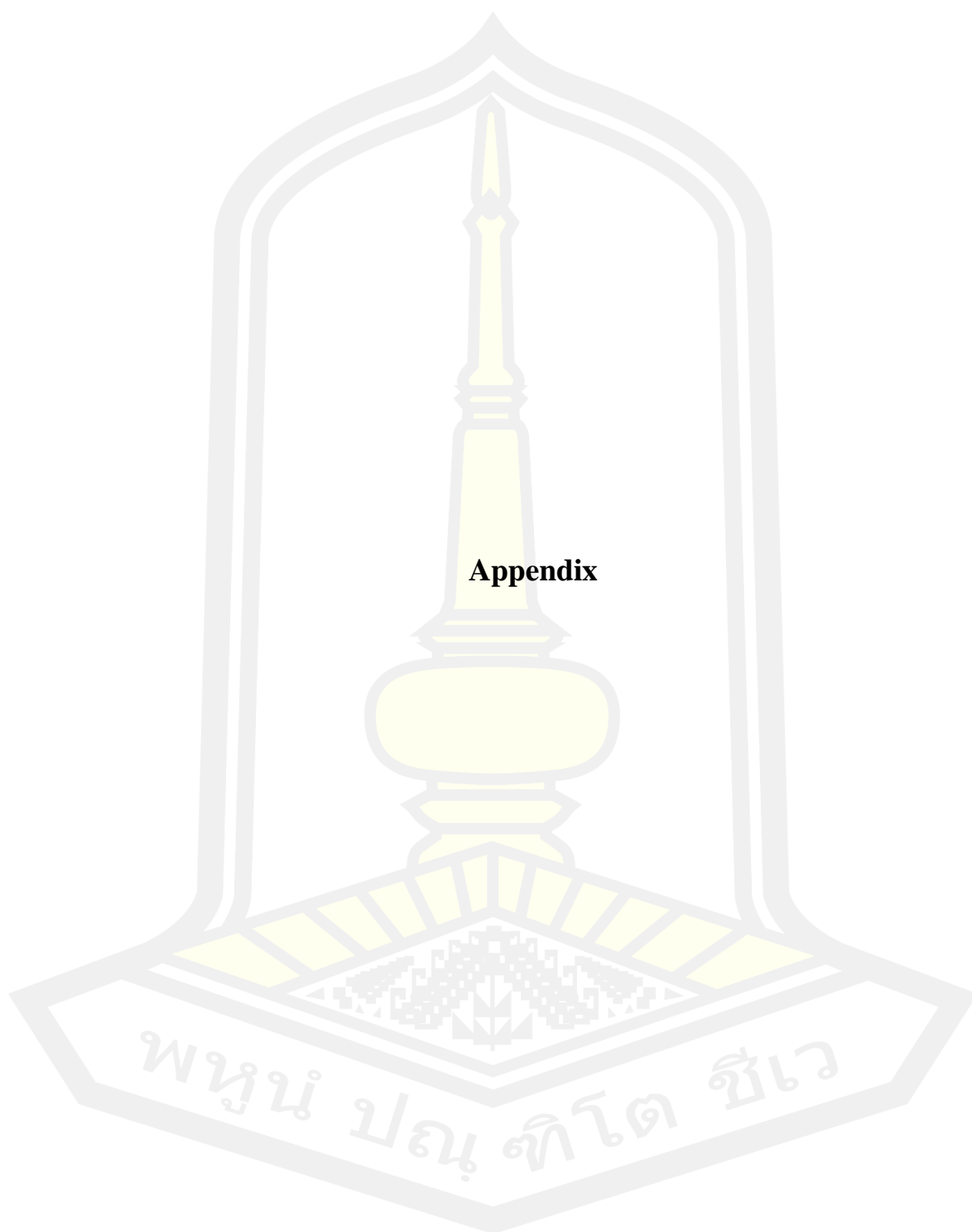
Appendix
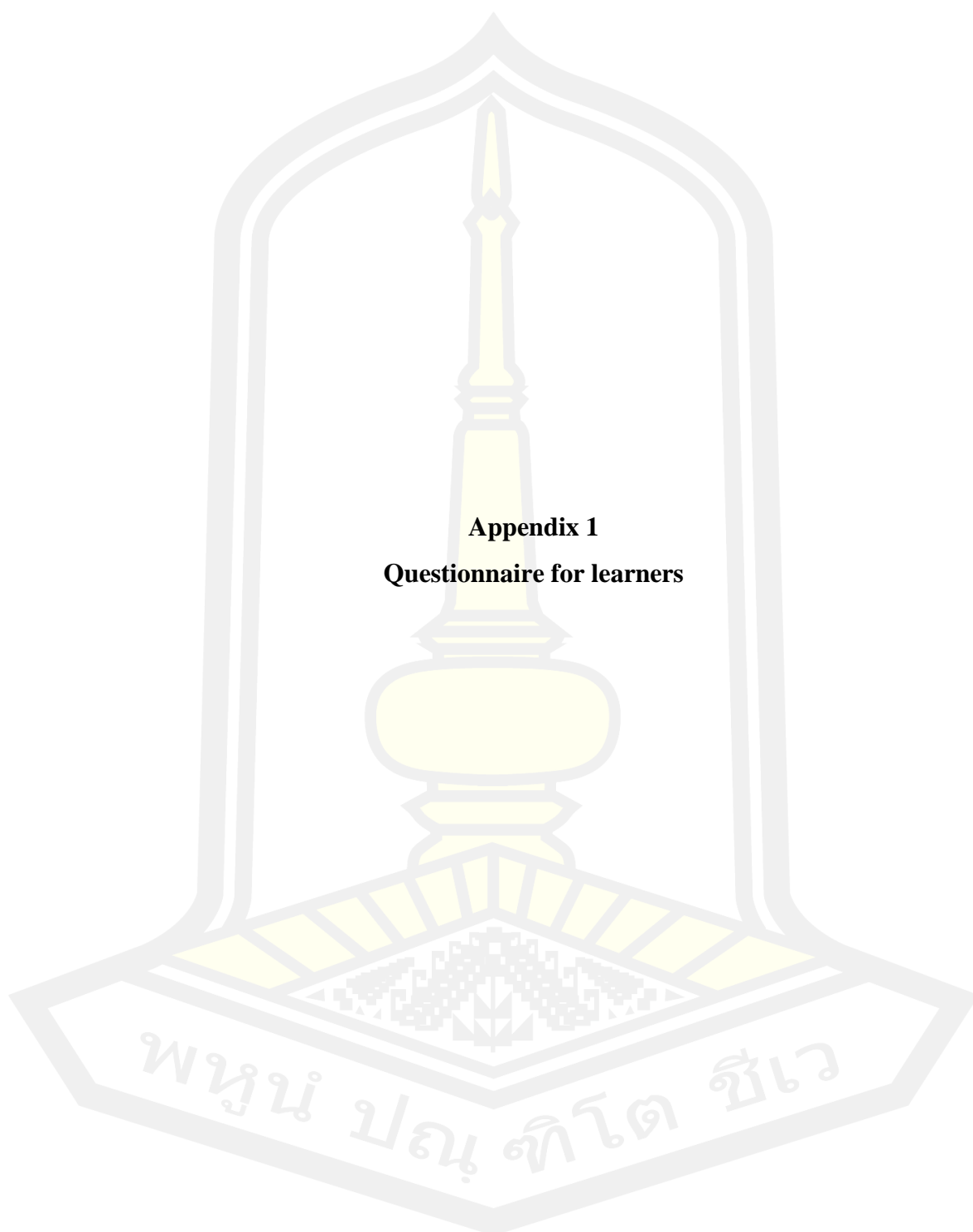
Appendix 1

Questionnaire for learners

Questionnaire for learners

This questionnaire aims to investigate the perceptions of Thai tertiary-level Engineering learners towards EMI

Please note that this is not an examination, and that your personal and honest answers would be appreciated and of most value. I assure you that your responses will be treated with the strictest confidence in accordance with research ethics. Thank you for your kind cooperation.

Researcher

Prowsaeng Poosinghar

Section I

General information

Program ☐ 1. Chemical Engineering

☐ 2. Logistic Engineering

☐ 3. Digital Engineering

☐ 4. Telecommunication

Year ☐ 1st year ☐ 2nd year ☐ 3rd year ☐ 4th year

Gender ☐ Male ☐ Female ☐ LQBTQ ☐ N/A

First language ....

Why did you decide to take the international program? Please only choose one.

☐ To improve my level of English

☐ To study in a smaller group

☐ To have more opportunities regarding international mobility

☐ To have better professional opportunities

☐ Other (Specify)

How long have you been studying English?

☐ Less than 5 years ☐ 5-10 years ☐ 10-15 years ☐ More than 15 years

Have you ever been to a country which uses English as the first language?

☐ Yes ☐ No

Section II

Please specify your level of agreement or disagreement on the following scale:

1= Strongly disagree   2= Disagree   3= Neutral   4= Agree   5= Strongly agree

No.	Overall Perception	Scale of agreement				
		1	2	3	4	5
1	I think the courses or subjects of the international program are appropriate to learn.					
2	I think the international program management is well coordinated.					
3	I think an English training course before starting the international program is necessary.					
4	I think learning subject in English is a positive experience for me.					
5	I think the subjects can respond students' satisfaction.					
6	I need to study very harder while learning subject in English in the international program.					
7	I would recommend this international program to others.					

Course and materials		Scale of agreement				
		1	2	3	4	5
8	I think the lecturers can speak clearly English while teaching.					
9	I think the lecturers introduce the course syllabus and commitments clearly before starting the course.					
10	I think the lectures should use English in the whole teaching hours without any other languages used.					
11	I think the English materials are available enough.					
12	I think the perception of learning subjects in English is not as different as learning in Thai.					
13	I think the evaluation in international program is more difficult than regular program.					
14	I think ,overall, the course contents in the international program have met my expectations.					

Internationalization and language learning		Scale of agreement				
		1	2	3	4	5
15	I think taking the international program will have a positive effect on my professional future.					
16	I think taking part in this program may improve my English.					
17	I think studying in the international program encourages me to find more English materials.					
18	I think following lessons in English has provided me with technical vocabulary and skills in English.					
19	I think, I am prepared to study and even work in a foreign country that uses English.					

20. Suggestions

....

....

<div align="center">
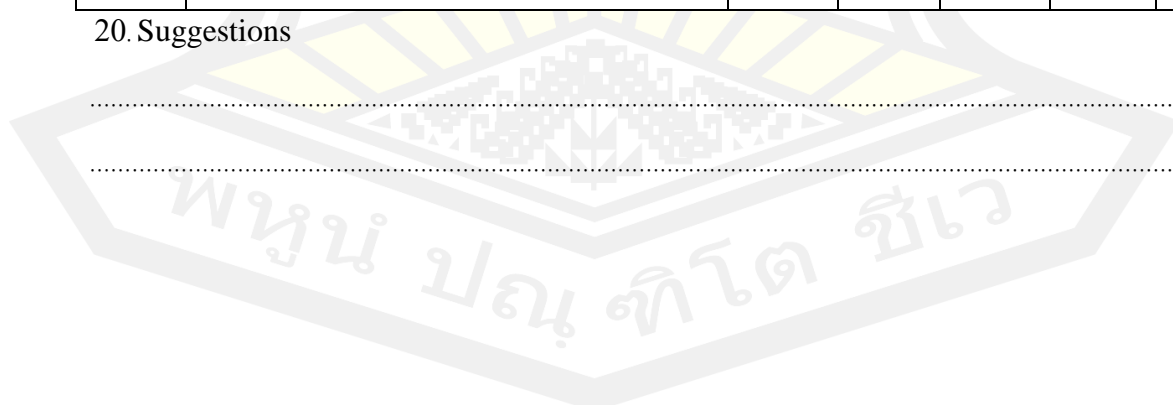
ฉบับภาษาไทย

แบบสอบถามสำหรับผู้เรียน

</div>

แบบสอบถามนี้ มีจุดประสงค์เพื่อศึกษาการรับรู้ของผู้เรียนคณะวิศวกรรมศาสตร์ ใน
ระดับอุดมศึกษาไทย ต่อ การใช้ภาษาอังกฤษเป็นสื่อกลางในการสอน

ขอเรียนแจ้งเพื่อทราบว่า แบบสอบถามชุดนี้ไม่ใช่ข้อสอบ ขอความกรุณาท่านตอบตาม
ความคิดเห็นและความจริง เพื่อประโยชน์ของงานวิจัย และดิฉันขอยืนยันว่าคำตอบของท่านจะนำ
เก็บไว้เป็นความลับตามจริยธรรมงานวิจัย ขอบพระคุณสำหรับความร่วมมือ

<div align="right">

ผู้วิจัย

พราวแสง ภูสิงหา

</div>

ส่วนที่ 1

ข้อมูลทั่วไป

หลักสูตร ☐ 1. วิศวกรรมเคมี

☐ 2. วิศวกรรมโลจิสติกส์

☐ 3. วิศวกรรมสื่อดิจิทัล

☐ 4. วิศวกรรมโทรคมนาคม

กำลังศึกษาชั้นปีที่ ☐ ชั้นปีที่ 1 ☐ ชั้นปีที่ 2 ☐ ชั้นปีที่ 3 ☐ ชั้นปีที่ 4

เพศ ☐ ชาย ☐ หญิง ☐ (LGBTQ) ☐ อื่นๆ

ภาษาแม่ของท่าน …………………………..

เหตุผลที่ตัดสินใจเข้าศึกษาในหลักสูตรนานาชาติ (สามารถเลือกตอบได้มากกว่า 1 ข้อ)

☐ เพื่อพัฒนาระดับภาษาอังกฤษ

☐ เพื่อเรียนในกลุ่มเล็กลง หรือ จำนวนผู้เรียนน้อยลง

☐ เพื่อสร้างโอกาสในการก้าวสู่ความเป็นนานาชาติ

☐ เพื่อเพิ่มโอกาสทางวิชาชีพให้ดีขึ้น

☐ อื่นๆ (โปรดระบุ)

คุณเรียนภาษาอังกฤษนานเท่าไหร่?

☐ น้อยกว่า 5 ปี ☐ 5-10 ปี ☐ 10-15 ปี ☐ มากกว่า 15 ปี

คุณเคยไปประเทศที่ใช้ภาษาอังกฤษเป็นภาษาหลักในการสื่อสาร หรือไม่ ?

☐ เคย (หากเคยโปรดระบุระยะเวลา) ………. ☐ ไม่เคย

ส่วนที่ 2

โปรดทำเครื่องหมาย โปรดระบุระดับความคิดเห็นด้วยหรือไม่เห็นด้วย ตามระดับความ
คิดเห็นที่กำหนดให้ ดังนี้:

1= ไม่เห็นด้วยอย่างยิ่ง   2= ไม่เห็นด้วย 3= ปานกลาง 4= เห็นด้วย 5= เห็นด้วยอย่างยิ่ง

ลำดับ	การรับรู้ภาพรวม	ระดับความคิดเห็น				
		1	2	3	4	5
1	ฉันคิดว่ารายวิชาในหลักสูตรนานาชาติ มีความเหมาะสมที่จะเรียน					
2	ฉันคิดว่ามีการจัดการหลักสูตรที่ดี					
3	ฉันคิดว่าควรมีคอร์สฝึกอบรมภาษาอังกฤษก่อนเริ่มเรียนให้หลักสูตรนานาชาติ					
4	ฉันคิดว่าการเรียนเนื้อหาด้วยภาษาอังกฤษเป็นประสบการณ์ที่ดี					
5	ฉันคิดว่ารายวิชาที่เรียนสามารถตอบสนองความพึงพอใจ					
6	ฉันจำเป็นต้องพยายามมากกว่าเมื่อเรียนเนื้อหาด้วยภาษาอังกฤษ ในหลักสูตรนานาชาติ					
7	ฉันจะแนะนำหลักสูตรนานาชาตินี้ให้แก่ผู้อื่น					

|	ผู้สอน ภาษา และการเรียนการสอน	ระดับความคิดเห็น				
		1	2	3	4	5
8	ฉันคิดว่าอาจารย์สอนเนื้อหาด้วยภาษาอังกฤษ ได้อย่างเข้าใจชัดเจน					
9	ฉันคิดว่าอาจารย์ได้มีการแนะนำรายวิชาและ ข้อตกลงก่อนเริ่มเรียนอย่างครบถ้วนชัดเจน (จัดลำดับ)					
10	ฉันคิดว่าอาจารย์ควรใช้ภาษาอังกฤษในการ สอนทั้งคาบเรียน โดยไม่มีการใช้ภาษาอื่น ร่วมด้วย					
11	ฉันคิดว่าสื่อการเรียนการสอนภาษาอังกฤษมี เพียงพอ					
12	ฉันคิดว่าการรับรู้ในรายวิชาที่สอนด้วย ภาษาอังกฤษไม่แตกต่างกันกับรายวิชา เดียวกันที่สอนด้วยภาษาไทย					
13	ฉันคิดว่าหลักสูตรนานาชาติ มีการวัดและ ประเมินผลยากกว่าการเรียนหลักสูตรปกติ					
14	ฉันคิดว่าเนื้อหาหลักสูตรนานาชาติตรงตาม ความคาดหวัง					

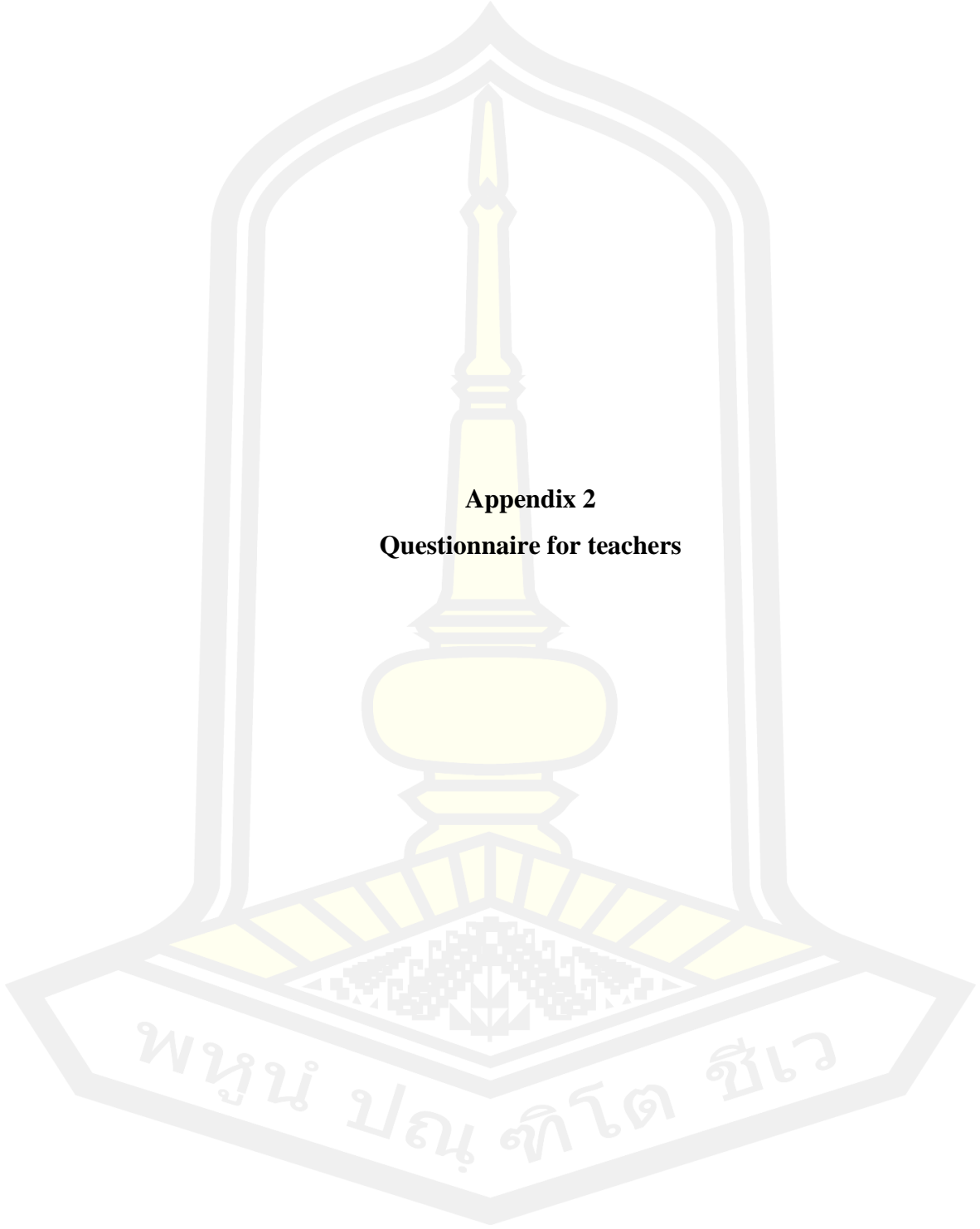| ความเป็นนานาชาติและการเรียนภาษา		ระดับความคิดเห็น				
		1	2	3	4	5
15	ฉันคิดว่าการเรียนในหลักสูตรนานาชาติจะ ส่งผลดีต่ออาชีพในอนาคต					
16	ฉันคิดว่าการเรียนในหลักสูตรนานาชาติจะ ช่วยพัฒนาระดับภาษาอังกฤษ					
17	ฉันคิดว่าการเรียนในหลักสูตรนานาชาติ ส่งผลให้ฉันสนใจสื่อภาษาอังกฤษจากแหล่ง ต่างๆ มากขึ้น					
18	ฉันคิดว่าการเรียนด้วยภาษาอังกฤษทำให้รู้ ศัพท์เทคนิคมากขึ้น					
19	ฉันคิดว่าฉันมีความพร้อมที่จะศึกษาต่อหรือ ทำงานในต่างประเทศที่ใช้ภาษาอังกฤษ					

20. ความคิดเห็นอื่นๆ โปรดระบุ

……

……

………………………………………………………………………………………
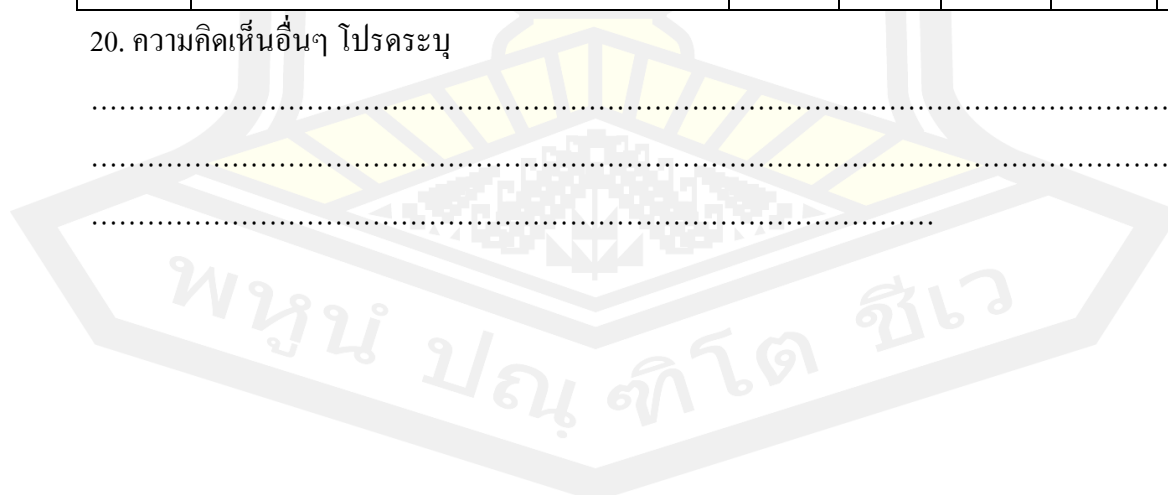
Appendix 2

Questionnaire for teachers

Questionnaire for teachers

This questionnaire aims to investigate the perceptions of Thai tertiary-level Engineering teachers towards EMI

Please be noted that this is not the examination. It is your personal and honest answers will be appreciated and valued here. I assure your response will be treated with the strict confidence in accordance with research ethics. Thank you for your kind cooperation.

Researcher

Prowsaeng Poosinghar

Section I

General information

Program ☐ 1. Chemical Engineering

☐ 2. Logistic Engineering

☐ 3. Digital Engineering
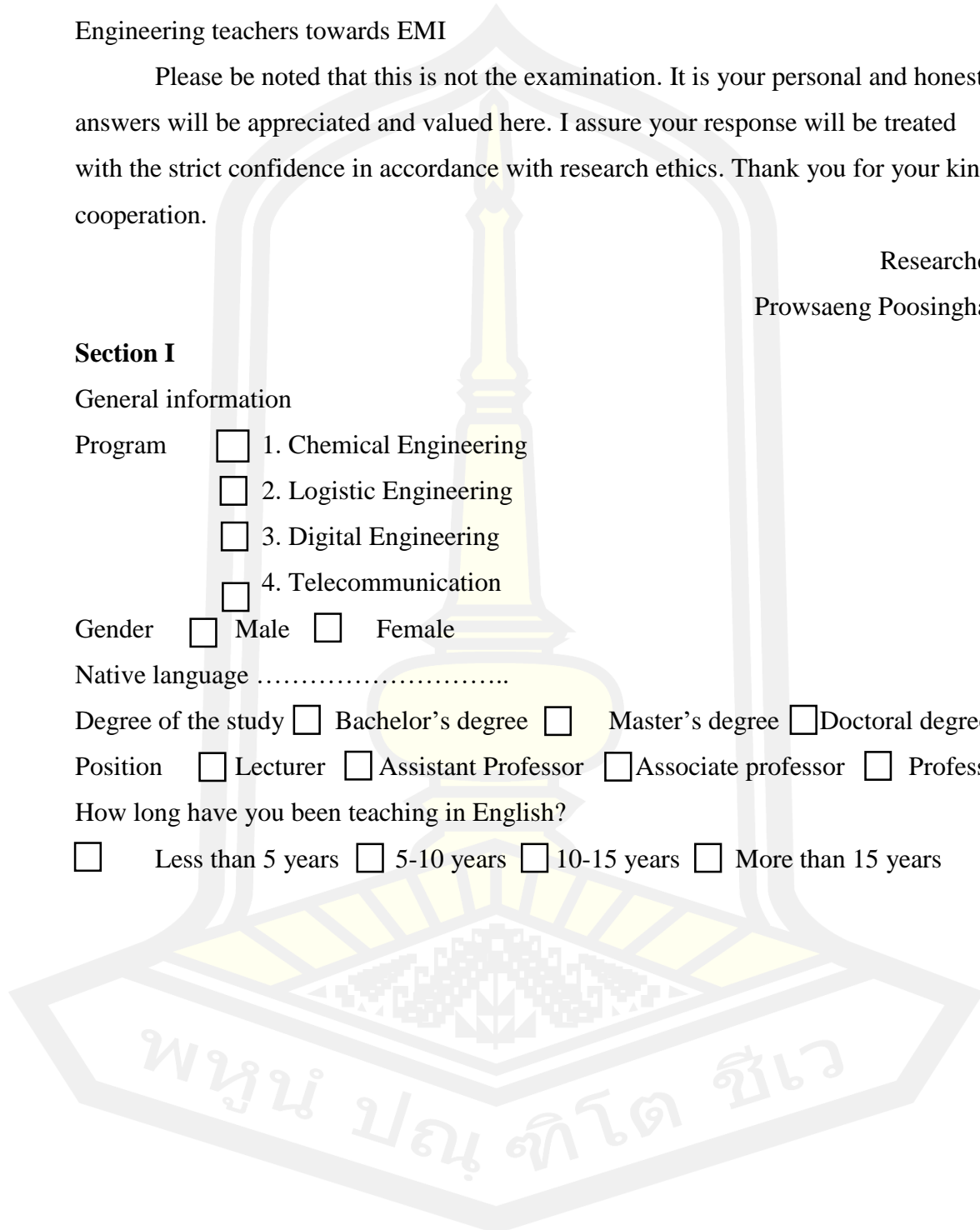
☐ 4. Telecommunication

Gender ☐ Male ☐ Female

Native language ………………………..

Degree of the study ☐ Bachelor's degree ☐ Master's degree ☐ Doctoral degree

Position ☐ Lecturer ☐ Assistant Professor ☐ Associate professor ☐ Professor

How long have you been teaching in English?

☐ Less than 5 years ☐ 5-10 years ☐ 10-15 years ☐ More than 15 years

Section II

Please specify your level of agreement or disagreement regarding to the following scale:

1= Strongly disagree   2= Disagree   3= Neutral   4= Agree   5= Strongly agree

No.	Overall Perception	Scale of agreement				
		1	2	3	4	5
1	I think resources for teaching e.g., textbooks and reference books, are more plentiful in English than Thai publishing.					
2	I think, I support adopting EMI at the university where I teach.					
3	I think, EMI increases the workload of lectures.					
4	I think it is difficult to express content in English.					
5	I think EMI conflicts Thai scientific people with their national interests.					
6	I think it is easier to organize the lesson and to prepare classroom materials in EMI.					
7	I think the greatest problem in using Thai as a medium of instructions is special terms translation.					
8	It is easier to teach non-language subjects (e.g. Mathematics, Physics) in English than in Thai.					

No.	Teachers' perception on teaching and learning process from the perspectives of learners	Scale of agreement				
		1	2	3	4	5
9	I think I am proficient enough to teach in English.					
10	I think the English proficiency of learners I teach is not adequate for them to study non-language subject.					
11	I think lecturing in Thai can promote learners' interest in learning more than lecturing in English.					
12	I think EMI will provide learners with being more successful in business life after university.					
13	I think learners tend to neglect those subjects taught in English.					
14	I think learners' gains regarding their fields of study increase via EMI not different as Thai medium instruction.					
15	I think lecturing in Thai produces a better classroom atmosphere than lecturing in English.					
16	I think learners utilize their academic and social environments more in Thai medium instruction.					

17. Suggestions

………………………………………………………………………………………………

………………………………………………………………………………………………

ฉบับภาษาไทย
แบบสอบถามสำหรับอาจารย์

แบบสอบถามนี้ มีจุดประสงค์เพื่อศึกษาการรับรู้ของอาจารย์คณะวิศวกรรมศาสตร์ใน
ระดับอุดมศึกษาไทย ต่อการใช้ภาษาอังกฤษเป็นสื่อกลางในการสอน

ขอความกรุณาท่านตอบตามความคิดเห็นและความจริง เพื่อประโยชน์ของงานวิจัย และ
ดิฉันขอยืนยันว่าคำตอบของท่านจะนำเก็บไว้เป็นความลับตามจริยธรรมงานวิจัย ขอบพระคุณ
สำหรับความร่วมมือ

พราวแสง ภูสิงหา
ผู้วิจัย

ส่วนที่ 1
ข้อมูลทั่วไป

หลักสูตร ☐ 1. วิศวกรรมเคมี
☐ 2. วิศวกรรมโลจิสติกส์
☐ 3. วิศวกรรมสื่อดิจิทัล
☐ 4. วิศวกรรมโทรคมนาคม

เพศ ☐ ชาย ☐ หญิง ☐ เพศทางเลือก (LGBTQ) ☐ อื่นๆ

ภาษาหลักที่ใช้ ....

ระดับการศึกษา ☐ ปริญญาตรี ☐ ปริญญาโท ☐ ปริญญาเอก

สำเร็จการศึกษาสูงสุด ☐ ในประเทศไทย ☐ ต่างประเทศ

ตำแหน่ง ☐ อาจารย์ ☐ ผู้ช่วยศาสตราจารย์ ☐ รองศาสตราจารย์ ☐ ศาสตราจารย์

คุณสอนวิชาเป็นภาษาอังกฤษมานานเท่าไหร่แล้ว?
☐ 1-4 ปี ☐ 4-8 ปี ☐ 8- 12 ปี ☐ มากกว่า 12 ปี

โปรดระบุระดับความคิดเห็นด้วยหรือไม่เห็นด้วย ตามระดับความคิดเห็นที่กำหนดให้
ดังนี้:

1= ไม่เห็นด้วยอย่างยิ่ง 2= ไม่เห็นด้วย 3= ปานกลาง 4= เห็นด้วย 5= เห็นด้วยอย่างยิ่ง

ลำดับ	การรับรู้ของอาจารย์ด้านกระบวนการเรียนและการสอนต่อ การใช้ภาษาอังกฤษเป็นสื่อกลางในการสอน	ระดับความคิดเห็น				
		1	2	3	4	5
1	ฉันคิดว่าสื่อการสอนที่มีภาษาอังกฤษ อาทิ หนังสือ หนังสืออ้างอิงอื่นๆ รวมถึงเอกสารอื่นๆ มีมากกว่าสื่อการสอนที่เป็นภาษาไทย					
2	ฉันคิดว่าควรสนับสนุนให้ใช้ภาษาอังกฤษเป็นสื่อกลางในการสอน					
3	ฉันคิดว่าการใช้ภาษาอังกฤษเป็นสื่อกลางในการสอน ทำให้ภาระงานของอาจารย์เพิ่มขึ้น					
4	ฉันคิดว่าการอธิบายเนื้อหาด้วยภาษาอังกฤษเป็นเรื่องยาก					
5	ฉันคิดว่าการใช้ภาษาอังกฤษเป็นสื่อกลางในการสอนขัดแย้งกับเรื่องค่านิยมของคนไทย					
6	ฉันคิดว่าการจัดการชั้นเรียนและเตรียมอุปกรณ์การสอนโดยวิธีการสอนแบบภาษาอังกฤษเป็นเรื่องง่าย					
7	ฉันคิดว่าปัญหาที่ใหญ่ที่สุดในการใช้ภาษาไทยเป็นสื่อกลางในการสอน คือ การแปลศัพท์เฉพาะ					
8	ฉันคิดว่าการสอนวิชาที่ไม่ใช่ด้านภาษา อาทิ คณิตศาสตร์ ฟิสิกส์ ง่ายกว่าสอนด้วยภาษาไทย					
9	ฉันคิดว่า ฉันมีศักยภาพมากพอที่จะสอนเป็นภาษาอังกฤษ					
10	ฉันคิดว่าศักยภาพภาษาอังกฤษของผู้เรียนที่ฉันสอนไม่เพียงพอที่จะเรียนวิชาที่ไม่ใช่ด้านภาษา					

ลำดับ	การรับรู้ของอาจารย์ด้านกระบวนการการเรียนการสอนจากมุมมองผู้เรียน	ระดับความคิดเห็น				
		1	2	3	4	5
11	ฉันคิดว่าการสอนด้วยภาษาไทยสามารกระตุ้นความสนใจได้มากกว่าสอนด้วยภาษาอังกฤษ					
12	ฉันคิดว่าการใช้ภาษาอังกฤษเป็นสื่อกลางในการสอนช่วยให้ผู้เรียนประสบความสำเร็จในหน้าที่การงาน หลังจับมหาวิทยาลัย					
13	ฉันคิดว่าผู้เรียนมีแนวโน้มเพิกเฉยต่อวิชาที่สอนด้วยภาษาอังกฤษ					
14	ฉันคิดว่าผู้เรียนในวิชาที่สอนด้วยภาษาอังกฤษไม่แตกต่างจากวิชาที่สอนด้วยภาษาไทย					
15	ฉันคิดว่าการสอนด้วยภาษาไทยช่วยสร้างบรรยากาศห้องเรียนได้ดีกว่าสอนด้วยภาษาอังกฤษ					
16	ฉันคิดว่าผู้เรียนกล้าแสดงความคิดเห็นในห้องเรียนมากกว่า เมื่อใช้ภาษาไทยเป็นสื่อสารในห้องเรียน					

17. ความคิดเห็นอื่นๆ โปรดระบุ

....

....
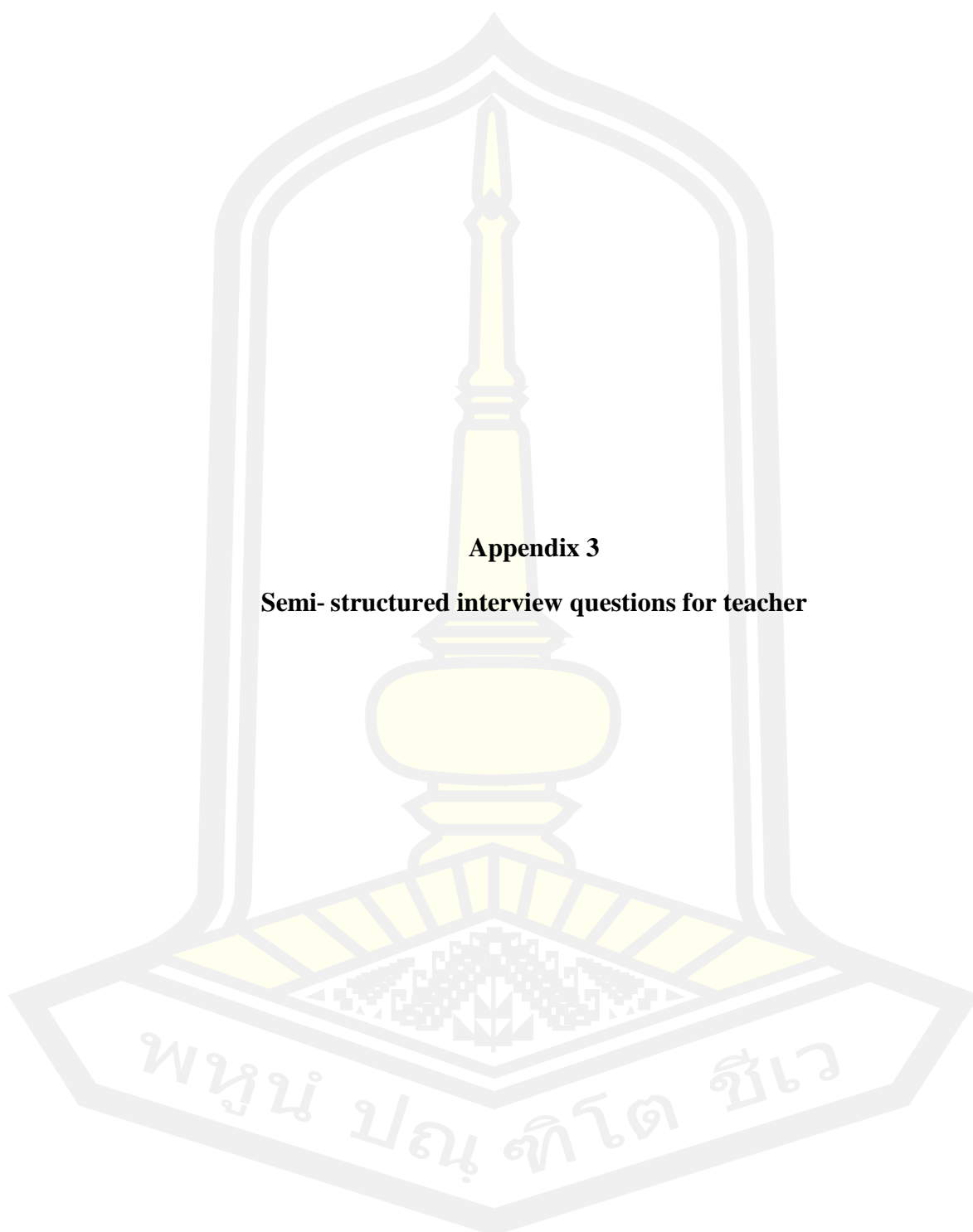
Appendix 3

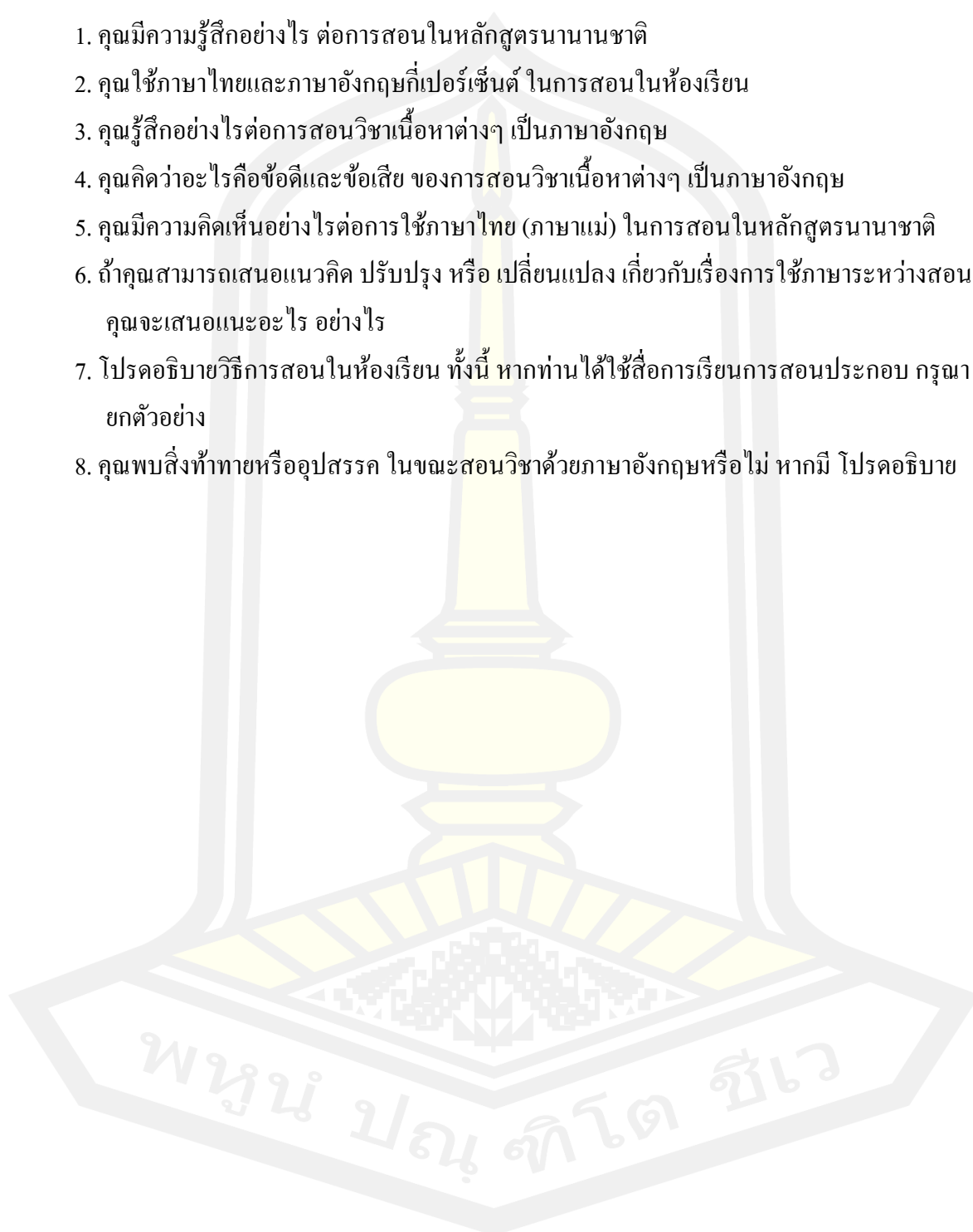**Semi- structured interview questions for teacher**

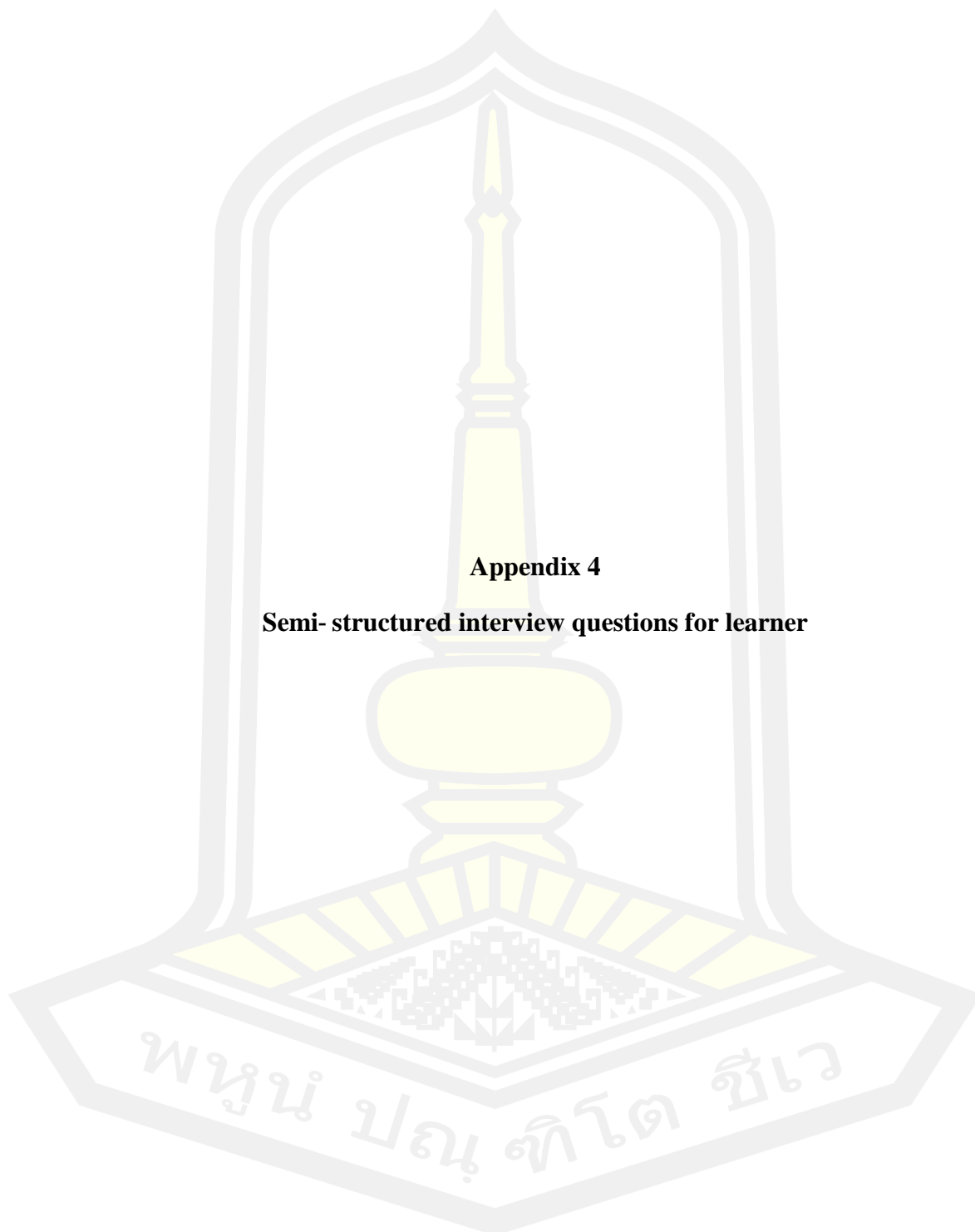**Semi-structured interview questions for teacher**

1. How do you feel about teaching on international program?

2. What's the ratio of using Thai and English in international program?

3. How do you feel about using English as a main language content subject?

4. What's the strong and weak points in teaching content subjects in English?

5. What's your opinion toward using Thai language (L1) for teaching in international program?

6. If you could adjust or develop language used in teaching, what aspect would you like to focus on? And how?

7. Please describe your teaching process in classroom and Do you use any material? If any please give some examples

8. Do you have any challenges while teaching subjects in English? If any what are they?
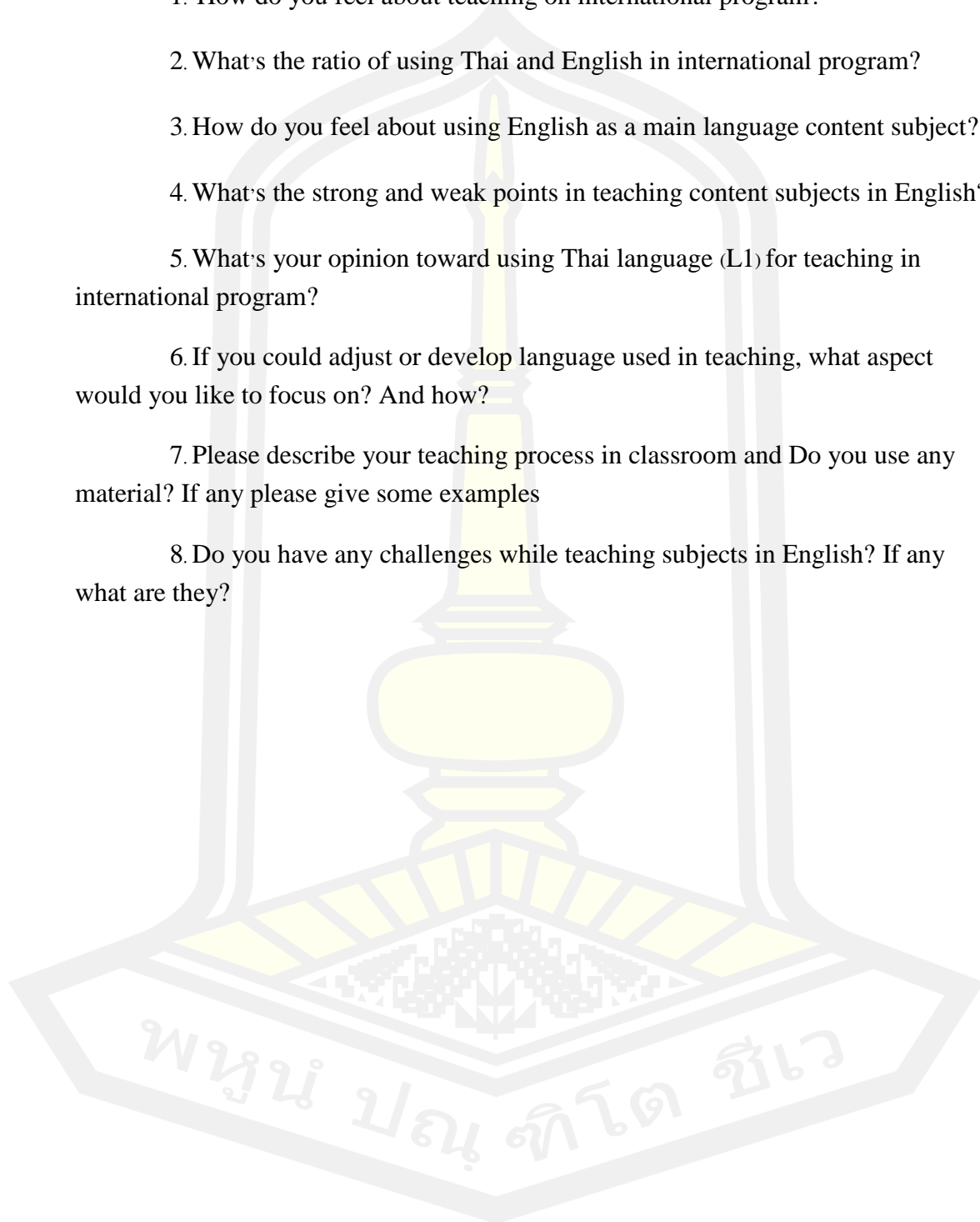
คำถามสัมภาษณ์อาจารย์

1. คุณมีความรู้สึกอย่างไร ต่อการสอนในหลักสูตรนานาชาติ

2. คุณใช้ภาษาไทยและภาษาอังกฤษกี่เปอร์เซ็นต์ ในการสอนในห้องเรียน

3. คุณรู้สึกอย่างไรต่อการสอนวิชาเนื้อหาต่างๆ เป็นภาษาอังกฤษ

4. คุณคิดว่าอะไรคือข้อดีและข้อเสีย ของการสอนวิชาเนื้อหาต่างๆ เป็นภาษาอังกฤษ

5. คุณมีความคิดเห็นอย่างไรต่อการใช้ภาษาไทย (ภาษาแม่) ในการสอนในหลักสูตรนานาชาติ

6. ถ้าคุณสามารถเสนอแนวคิด ปรับปรุง หรือ เปลี่ยนแปลง เกี่ยวกับเรื่องการใช้ภาษาระหว่างสอน
   คุณจะเสนอแนะอะไร อย่างไร

7. โปรดอธิบายวิธีการสอนในห้องเรียน ทั้งนี้ หากท่านได้ใช้สื่อการเรียนการสอนประกอบ กรุณา
   ยกตัวอย่าง

8. คุณพบสิ่งท้าทายหรืออุปสรรค ในขณะสอนวิชาด้วยภาษาอังกฤษหรือไม่ หากมี โปรดอธิบาย

Appendix 4

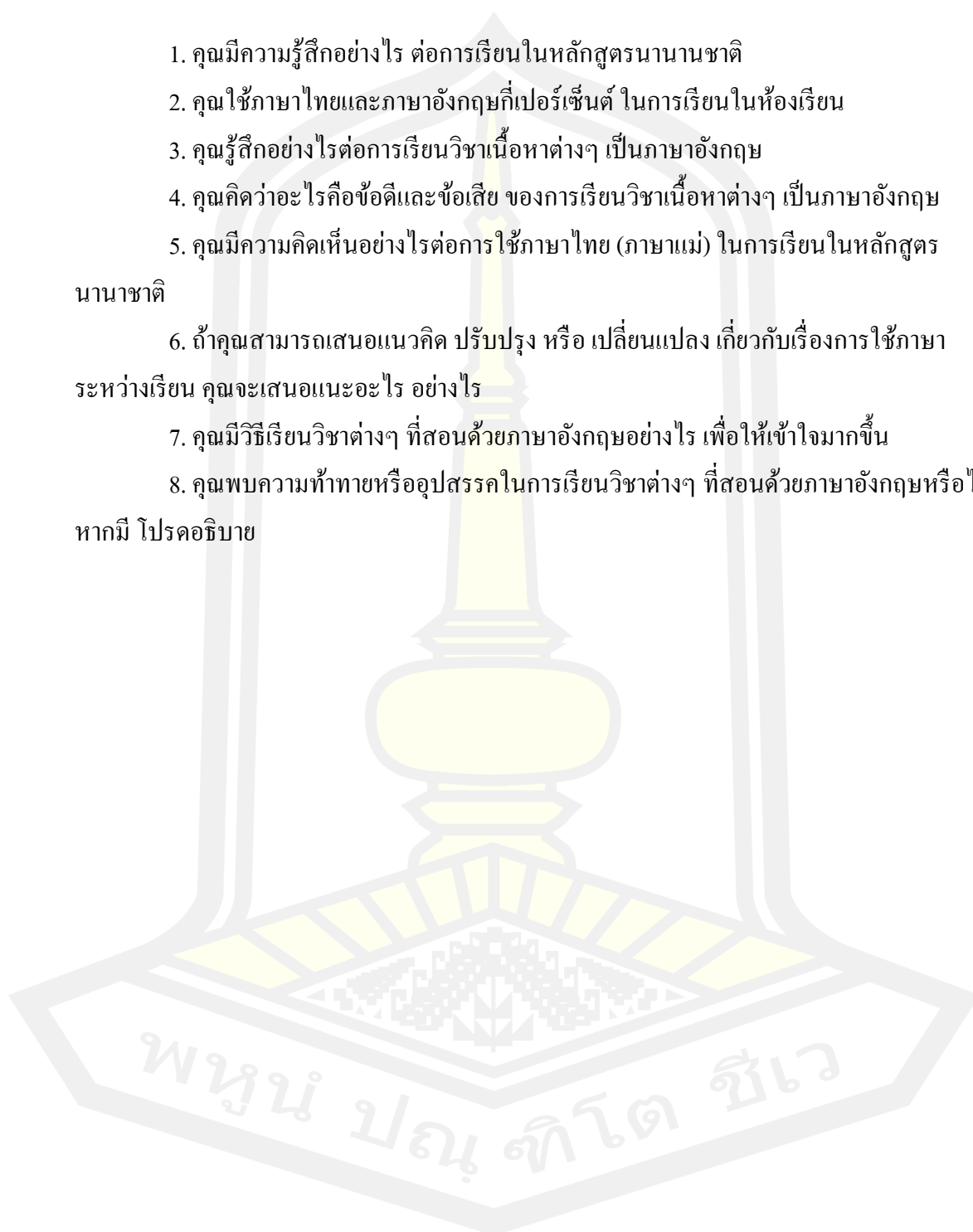**Semi- structured interview questions for learner**

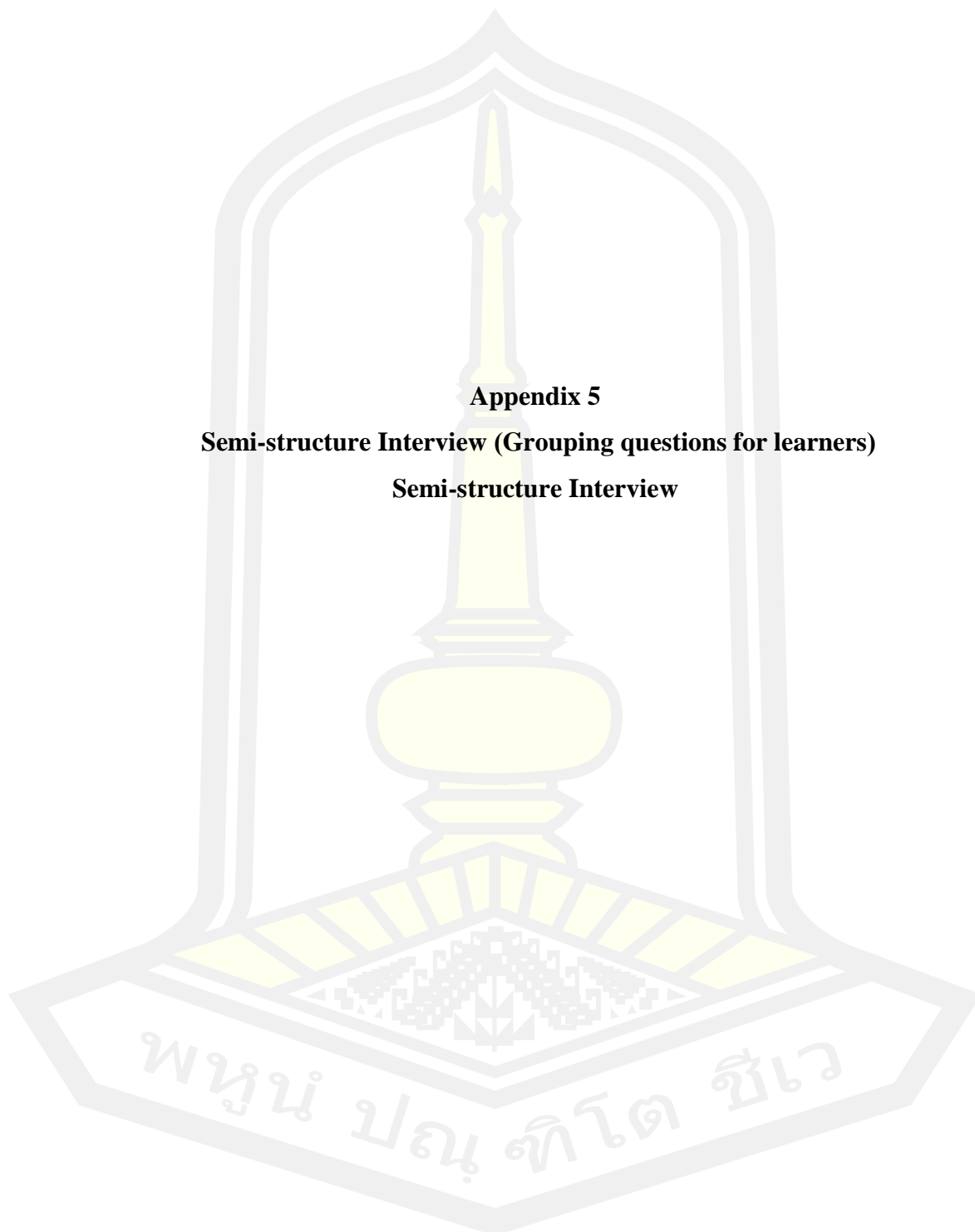**Semi-structured interview questions for learner**

1. How do you feel about learning on international program?

2. What's the ratio of using Thai and English while learning in classroom?

3. How do you feel about using English as a main language in content subject while learning?

4. What's the strong and weak points in learning content subjects in English?

5. What's your opinion toward using Thai language (L1) for learning in international program?

6. If you could adjust or develop on language used for learning, what aspect would you like to focus on? And how?

7. How do you learn subject/content in English in order to gain more understanding?

8. Do you have any challenges or difficulties while learning subjects in English? If any please describe
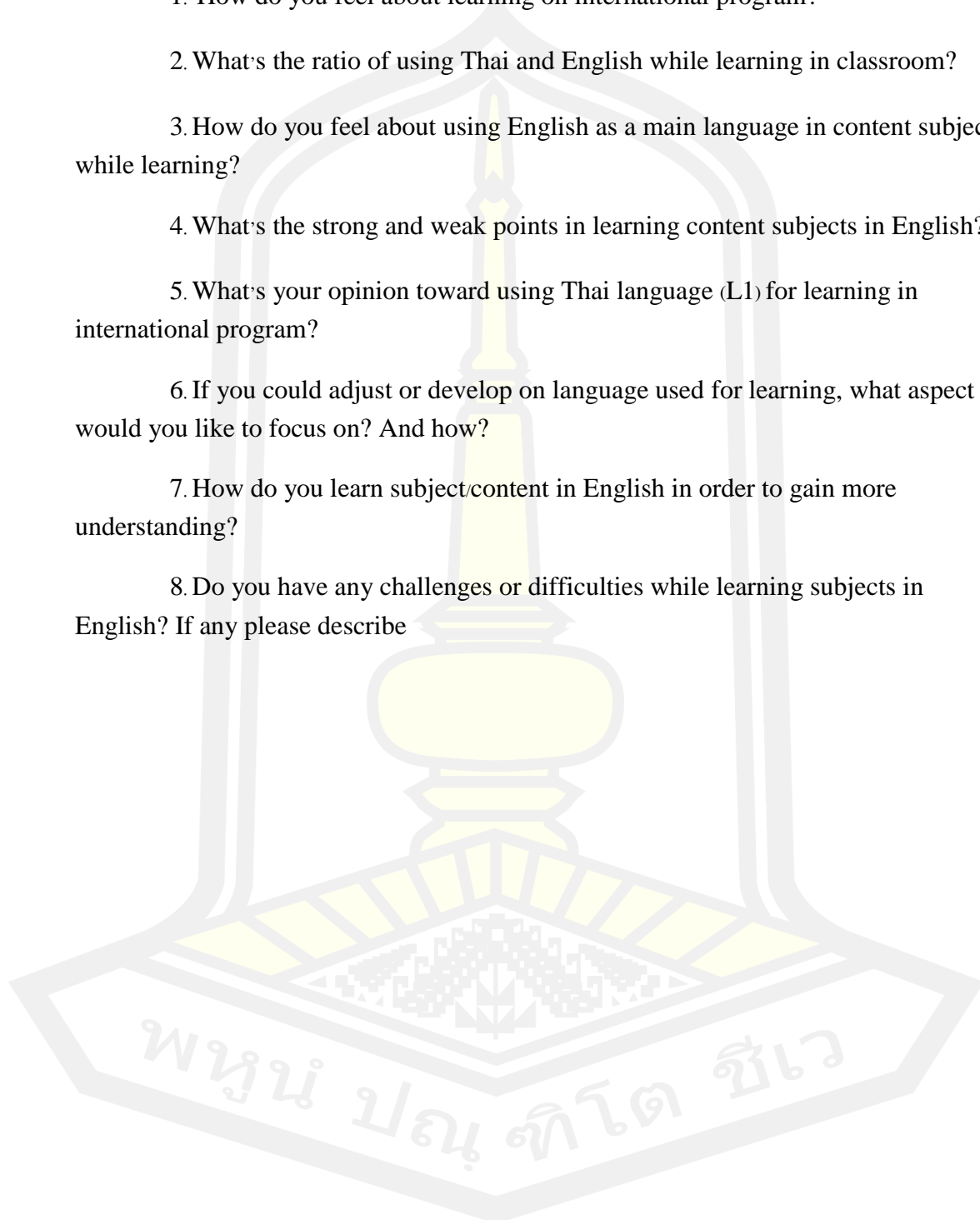
คำถามสัมภาษณ์ผู้เรียน

1. คุณมีความรู้สึกอย่างไร ต่อการเรียนในหลักสูตรนานานชาติ

2. คุณใช้ภาษาไทยและภาษาอังกฤษกี่เปอร์เซ็นต์ ในการเรียนในห้องเรียน

3. คุณรู้สึกอย่างไรต่อการเรียนวิชาเนื้อหาต่างๆ เป็นภาษาอังกฤษ

4. คุณคิดว่าอะไรคือข้อดีและข้อเสีย ของการเรียนวิชาเนื้อหาต่างๆ เป็นภาษาอังกฤษ

5. คุณมีความคิดเห็นอย่างไรต่อการใช้ภาษาไทย (ภาษาแม่) ในการเรียนในหลักสูตร
นานาชาติ

6. ถ้าคุณสามารถเสนอแนวคิด ปรับปรุง หรือ เปลี่ยนแปลง เกี่ยวกับเรื่องการใช้ภาษา
ระหว่างเรียน คุณจะเสนอแนะอะไร อย่างไร

7. คุณมีวิธีเรียนวิชาต่างๆ ที่สอนด้วยภาษาอังกฤษอย่างไร เพื่อให้เข้าใจมากขึ้น

8. คุณพบความท้าทายหรืออุปสรรคในการเรียนวิชาต่างๆ ที่สอนด้วยภาษาอังกฤษหรือไม่
หากมี โปรดอธิบาย

Appendix 5

Semi-structure Interview (Grouping questions for learners)

Semi-structure Interview

Semi-structure Interview (Grouping questions for learners)

Semi-structure Interview

The sample questions for the semi-structured interview are as follows:

Instruction

Please answer the questions regarding EMI based on your personal perspectives.

Questions regarding on perception of International program

1. How do you feel about learning on international program?
2. How do you feel about using English as a main language in content subject while learning?

Questions to understand the reasons for using Thai and English when learning

3. What's ratio of using Thai and English while learning in classroom?
4. What's strong and weak points in learning content subjects in English?
5. What's your opinion towards using Thai language (L1) for learning in international?
6. If you could adjust or develop on language used for learning, what aspect would you like to focus on? And how?

Question regarding on learning methods through EMI

7. How do you learn subject/content in English in order to gain more understanding?
8. What kind of learning tools/materials that you use to assist learning content subjects in English?

Question on challenges on EMI

9. Do you have any challenges or difficulties while learning subjects in English? If any please describe

Question regarding on perception/understanding on Internationalisation

10. Could you please describe internationalisation on your perspective?

คำถามสัมภาษณ์ผู้เรียน

คำแนะนำ

โปรดตอบคำถามตาม เกี่ยวกับ การใช้ภาษาอังกฤษเป็นสื่อกลางในการสอน ตามมุมมอง และความคิดเห็นของท่าน

คำถามด้านหลักสูตรนานาชาติ

1. คุณมีความรู้สึกอย่างไร ต่อการเรียนในหลักสูตรนานาชาติ

2. คุณรู้สึกอย่างไรต่อการเรียนเนื้อหาต่างๆ เป็นภาษาอังกฤษ

คำถามด้านเหตุผลการใช้ภาษาไทยและภาษาอังกฤษในขณะเรียน

3. คุณใช้ภาษาไทยและภาษาอังกฤษกี่เปอร์เซ็นต์ ในการเรียนในห้องเรียน

4. คุณคิดว่าอะไรคือข้อดีและข้อเสีย ของการเรียนวิชาเนื้อหาต่างๆ เป็นภาษาอังกฤษ

5. คุณมีความคิดเห็นอย่างไรต่อการใช้ภาษาไทย (ภาษาแม่) ในการเรียนในหลักสูตร นานาชาติ

6. ถ้าคุณสามารถเสนอแนวคิด ปรับปรุง หรือเปลี่ยนแปลง เกี่ยวกับเรื่องการใช้ภาษา ระหว่างเรียน คุณจะเสนอแนะอะไร อย่างไร

คำถามด้านวิธีการเรียนวิชาหรือเนื้อหา ด้วยการใช้ภาษาอังกฤษเป็นสื่อกลางในการสอน (English as a medium instruction: EMI)

7. คุณมีวิธีการเรียนวิชาต่างๆที่สอนด้วยภาษาอังกฤษอย่างไร เพื่อให้เข้าใจมากขึ้น

8. คุณใช้สื่อการเรียนรู้อะไร ในการเรียนหรือเป็นเครื่องมือช่วยในการเรียนเนื้อหาที่สอน ด้วยภาษาอังกฤษ

คำถามด้านความท้าทายต่อการใช้ภาษาอังกฤษเป็นสื่อกลางในการสอน (English as a medium instruction: EMI)

9. คุณพบความท้าทายหรืออุปสรรคในการเรียนวิชาต่างๆ ที่สอนด้วยภาษาอังกฤษ หรือไม่ หากมี โปรดอธิบาย

คำถามด้านการรับรู้หรือความเข้าใจ เรื่อง ความเป็นนนาชาติ

10. โปรดอธิบาย ความเป็นนานาชาติ ตามแนวคิดหรือความเข้าใจของท่าน
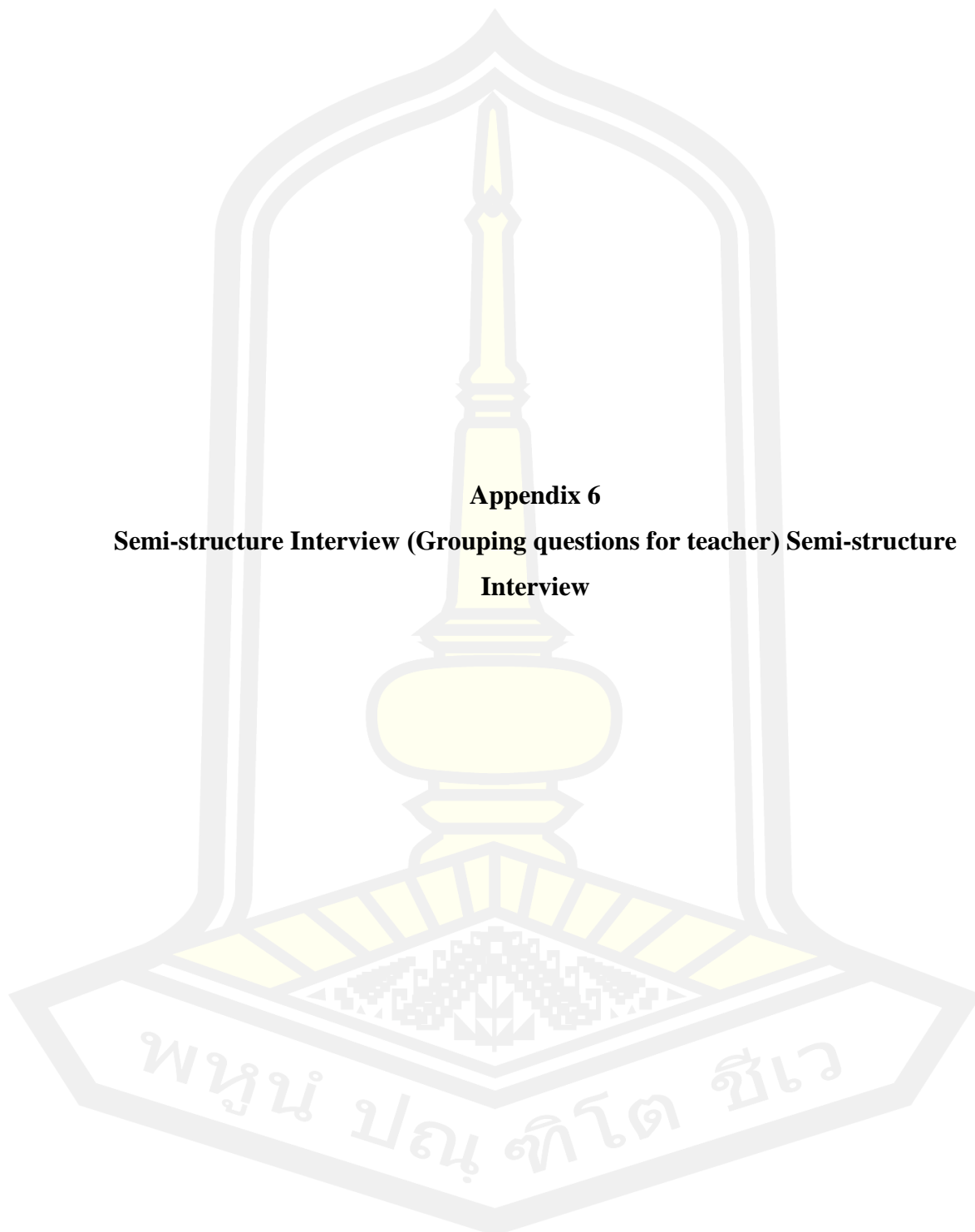
Appendix 6

Semi-structure Interview (Grouping questions for teacher) Semi-structure

Interview

Semi-structure Interview (Grouping questions for teacher)

Semi-structure Interview

The sample questions for the semi-structured interview are as a follows:

Instruction

Please answer the questions regarding EMI based on your personal perspectives.

Questions regarding on perception of International Program

1. How do you feel about teaching on international program?
2. How do you feel about using English as a main language content subject?

Questions to understand the reason for using Thai and English when teaching

3. What's the ratio of using Thai and English in international program?
4. What's the strong and weak points in teaching content subjects in English?
5. What's your opinion toward using Thai language (L1) for teaching in international program?
6. If you could adjust or develop language used in teaching, what aspect would you like to focus on? And how?

Question regarding on teaching methods through EMI

7. Please describe your teaching process in classroom and Do you use any material? If any please give some examples

Question on challenges on EMI

8. Do you have any challenges while teaching subjects in English? If any what are they?

Question regarding on perception/ understanding on Internationalisation

9. Could you please describe internationalization on your perspective?
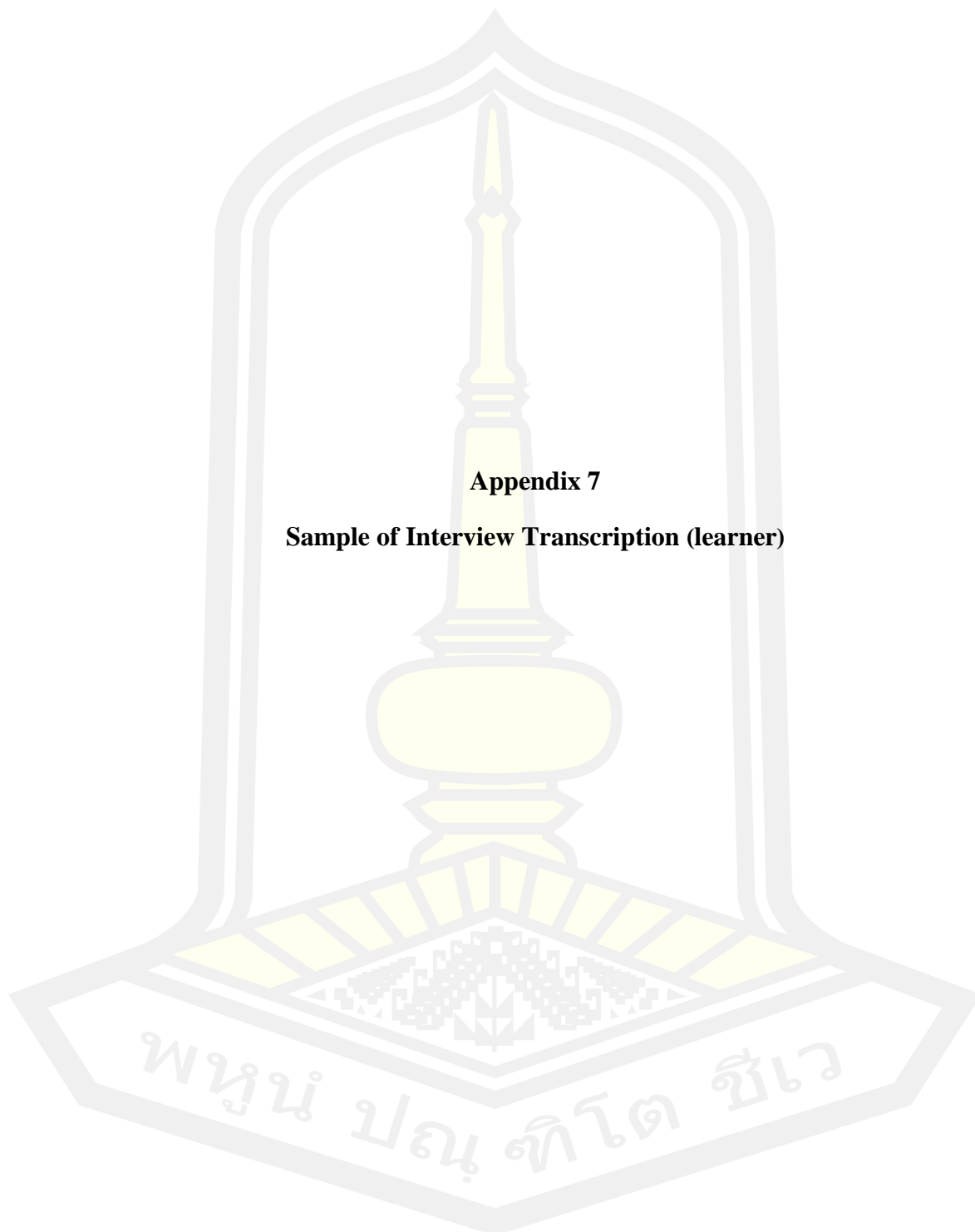
Appendix 7

Sample of Interview Transcription (learner)

Sample of Interview Transcription (learner)
Interview Transcription
Interview with student 2
Program: Logistic Engineering, 2nd year student

Prowsaeng: Let me start with the first point on the International Program. How do you feel about international program? Are you positive and happy?

Student 2: For me, Studying in an international program is both joyful and challenging When studying in the classroom is less stressful. It's true that not everyone has the same level of English. But when studying, I don't feel pressured.

Prowsaeng: I see, so it seems you like to study in this program, and before you study here, Did you graduate high school in EP/ English program?

Student 2: Yes, I studied English Program when I was in grade 7-9.

Prowsaeng: Okay, so why did you choose to study in an international program?

Student 2: Personally, when studying in junior high school, all subjects taught in English were not enough. I think they separated the English language course and have to pay additional costs. Therefore, when studying at the university, I expect to gain both English language and content, especially communication skills.

Prowsaeng: Speaking about the challenges that you mentioned, Could you please explain the challenges?

Student 2: The Engineering vocabulary. This vocabulary is different from general technical terminology or academic vocabulary. I have to go back and study more about it. Sometimes , I read Thai content, but when I switch to English.. I feel like reading in English is better.

Prowsaeng: I see, it looks like reading in English is more understandable.

Student 2: Yes, right, it looks like go back to read Thai.. then what?

Prowsaeng: I see, since we probably know the technical word , when we read the description in English, it is quite understood by our own sense, so when we translate in Thai, it is quite a bit weird.

Student 2: Yes,sometimes, when translated in Thai, the meaning will change to another way. Therefore, I think the challenge is that reading English motivates me to find other resources (English textbook) to help us be more understandable.

Prowsaeng: Alright, you are a very positive person in this course.

Prowsaeng: Well, let's move to the next point of using Thai and English while studying. If measured as a percentage, what percentage of your Thai language and English are used in the classroom? Can you give me an estimate in numbers?

Student 2: I think about 90% / 10%.

Prawsaeng: That's 90% English and 10% Thai, right?

Student 2: Yes, just like when I was studying. It seems to force us to use English, such as open questions. We have to use English. in a limited time too.

Prawsaeng: Well, mostly, what' occasions do you use English in classroom? Suac as questioning, classroom discussion, general conversation or ice breaking with teachers and friends. Can you give me some examples?

Student 2: If it's in English, for example, during the exam, presenting, but if it's in Thai, sometimes, the teacher will lead the question session to open the opportunity to students to ask. It's not compulsory, but sometimes I feel like, my friends like using Thai and teachers answer in Thai as well.

Prowsaeng: And teachers respond in Thai?

Student 2: Yes, but personally, I think teacher should respond in English.

Prowsaeng: I see, because of it's English content.

Student2: right, so I confused.

Prowsaeng: If teachers answer in Thai, do you think it will be more understandable?

Student 2: I think even though it's English or Thai, teachers should answer in English because at least it makes us feel familiar with English, content, and can focus on the main point.

Prowsaeng: Mostly, teachers respond in Thai?

Student 2: Yes.

Prowsaeng: Okay, this time I would like to ask you a question. What's the strong and weak points in learning content subjects in English?

Student 2: Yes, as for the strong points, I think that we have a chance to use English all the time and personally. Vocabulary is not as complicated as Thai language.

Prowsaeng: I guess it's more understandable.

Student 2: Yes

Prawsang: Oh,you're studying logistics, right? I'd like to ask you to give an example of a vocabulary related to logistics. Personally, I graduated in language. English but I don't have knowledge of engineering terminology. I would like to know if I can understand.

Student 2: Yes, for example, the word Spress

Prawsaeng: Yes, how do you spell it?

Student 2: Spress

Prowsaeng: Spress, what does it mean, does it mean like spreding or not?

Prowsaeng : It's like a technical term for materials, it exerts F/Force (Force) per D (Dimension) Area/Dimension.

Prawsaeng: Yes, it's about a parcel terminology.

Student 2: Yes, about the mechanics of material testing.

Prawsaeng: Oh, I understand that in this engineering term, they will be able to understand with the sense of the vocabulary in themselves. And if you ask a general person like you, you'll understand. It's a Technical word and if you ask the meaning. I can't translate either. So it shows that engineering students will already have a deep understanding of the technical word.

Student 2: Yes

Prowsaeng: And there are weak points of learning content subjects in English?

Student 2: Like sometimes the text is not enough, not detailed, needs to be added. Or sometimes there is no one who recommends that this book is good to read and understand, so we have to search on the internet by ourselves again.

Student 2: Yes, so that we can better understand the subject we are studying.

Prawsaeng:Usually, we have to find the textbook by ourselves, or is there a teacher to recommend or a senior, or is the course suggesting finding more textbooks?

Student 2: Most of the time In the course, there will only be a sheet or there may be text, but most of us will go to YouTube and search for teachers or foreign teachers. Keep searching, if this person still doesn't understand, they will choose new people. And I think we're going to have to find a teacher who clicks with us. and we also listen to his language when explaining

Prowsaeng: Then it means that the teacher is an important factor that indicates how much you will understand, is that correct?

Student2: Right.

Prowsaeng:What's your opinion toward using Thai language (L1) for learning in international program?

Student 2: I think I don't want it at all. It should be pure or 100% English like the teacher should try to explain in English by using the explanation in the teacher's own language Or, for example, a teacher trying to make a conversation in English with students is like encouraging students to use English and develop their language

Prawsaeng: Yes, although some of you may not emphasize using accent, at least the teacher tries to use English 100%. You feel better when the teacher uses English to communicate, right?

Student 2: Sometimes, the teacher explains in English and can switch back to Thai. Personally, I think why they have to do this, I'm confused.

Prowsaeng: This means that you don't want to switch languages at all.

Student 2: Yes, I don't want that.

Prowsaeng: It shows that you have the perception of internationals so much because when I asked some people they still gave the answer that there should be Thai language to be inserted in teaching, but for this younger person, there is an idea that I want to use 100% English.

Prowsaeng: If you could adjust or develop on language used for learning, what aspect would you like to focus on? And how?

Student 2: First of all, I want foreign teachers to teach students because if we want the gain the language, the teacher should not speak Thai with us in the classroom, and it should also be a teacher who teaches the engineering fields or being a teacher who teaches together. There are Thai teachers and foreign teachers who teach together (content based instruction-adjunct).

Prowsaeng: I agree. And hopefully in the future there will be improvements. This may be good for the younger generations.

Prawsang: Next, I would like to move to the learning method, how do you learn subject/content in English in order to gain more understanding.

Student 2: Yes, let me to give you an example, for example calculus, like when teachers teach teachers, they only teach the basics and pass through the lessons. I ran away, what I did was We have to go back and review. For example, find a video or an example. that explains the various methods source of content Which naturally is the person who must understand the origin of that thing.

Prawsaeng: Yeah, I guess you'll get more information from watching videos or technical samples. And if it's a video like YouTube or not?

Student 2: In the first year, there will be a senior tutoring and we can watch the video.

Prawsaeng: Okay, and if it's YouTube, you'll choose a teacher to teach too, right?

Student 2: Yes, as I said, if you meet a teacher who doesn't understand you, you will not understand the content or the way that they express.

Prowsaeng: so it means that Engineering teachers not only teach engineering, but also they must have language skills , and they must use a method of explaining in an engineering way for students to understand the content. Is that correct?

Student 2: Yes

Prowsaeng: May I move to the next question. Do you have any challenges and difficulties while learning subjects in English? If any please describe

Student 2:The challenge part is probably the vocabulary and the teacher.

Prowsaeng: In the teacher, how are the challenges?

Student 2: Some subjects focus on lecture, not demonstrations on calculation. And when the teacher asked, I was confused. <moreover, the class takes 3 hours , so it challenges me to try to read and understand to answer the questions, and follow the classs.

Prowsaeng:It seems like ,there is only direct lecture but lack of demonstrate or show how to do it.

Prowsaeng: How about the difficulties?

Student 2: The difficulties are about the study time and online platform. Everything is online and if you are late it means late , because it is an automatic system (submit work), which sometimes is a problem with external factors, such as the Internet, various online devices.

Prowsaeng: Have you ever studied at the onsite since the program started?

Student 2: No, I haven't.

Prowsaeng: Alright, I see.

Prowsaeng: So next issue is about internationalization. Please describe what internationalization.

Student 2: For me, every subjects, teachers must be in English. And on the discussion part, they should motivate students to answer and interact in the classroom, also they should have a foreign teachers with a good assent.

Prowsaeng: I see, if they have an exchange student abroad, do you agree with it?

Student 2: I do agree.

Prowsaeng: Do you have the countries' lists on your mind?

Student 2: Yes, The United States, and England.

Prowsaeng: I see, and if the program has some international students studying in the program. Do you agree?

Student 2: Personally, i agree because if they are our friends then it makes us feel confident to talk, and we can exchange about country and culture.

Prowsaeng: Now, do we have international student, studying in the program?

Student 2: No, and I feel disappointed that there is no foreign friends

Prowsaeng: In the future, I think we will extend the collaboration on curriculum and program with international universities, and publicize the program to invite international students to study in order to support the international environment.

Interview date
14 November 2021
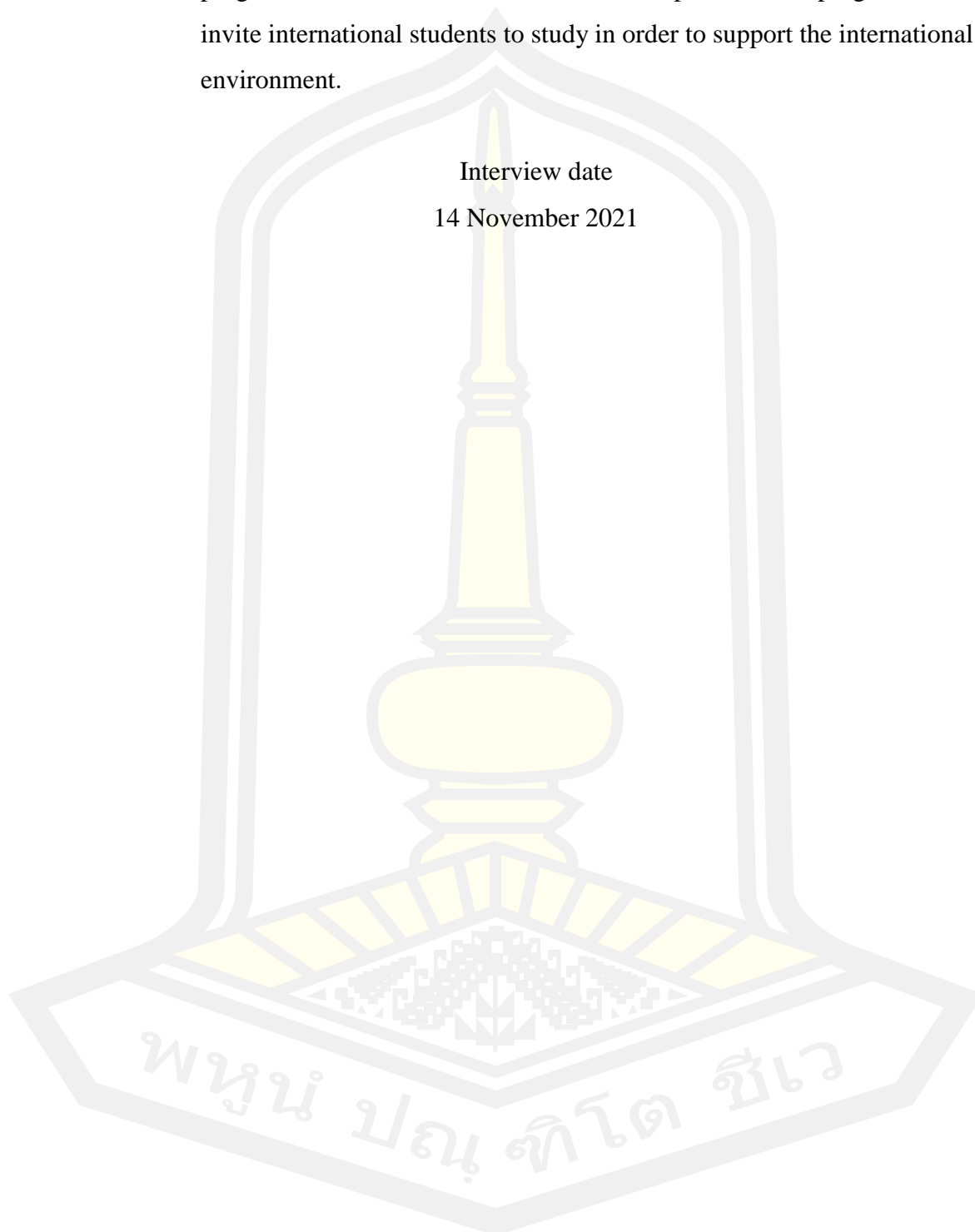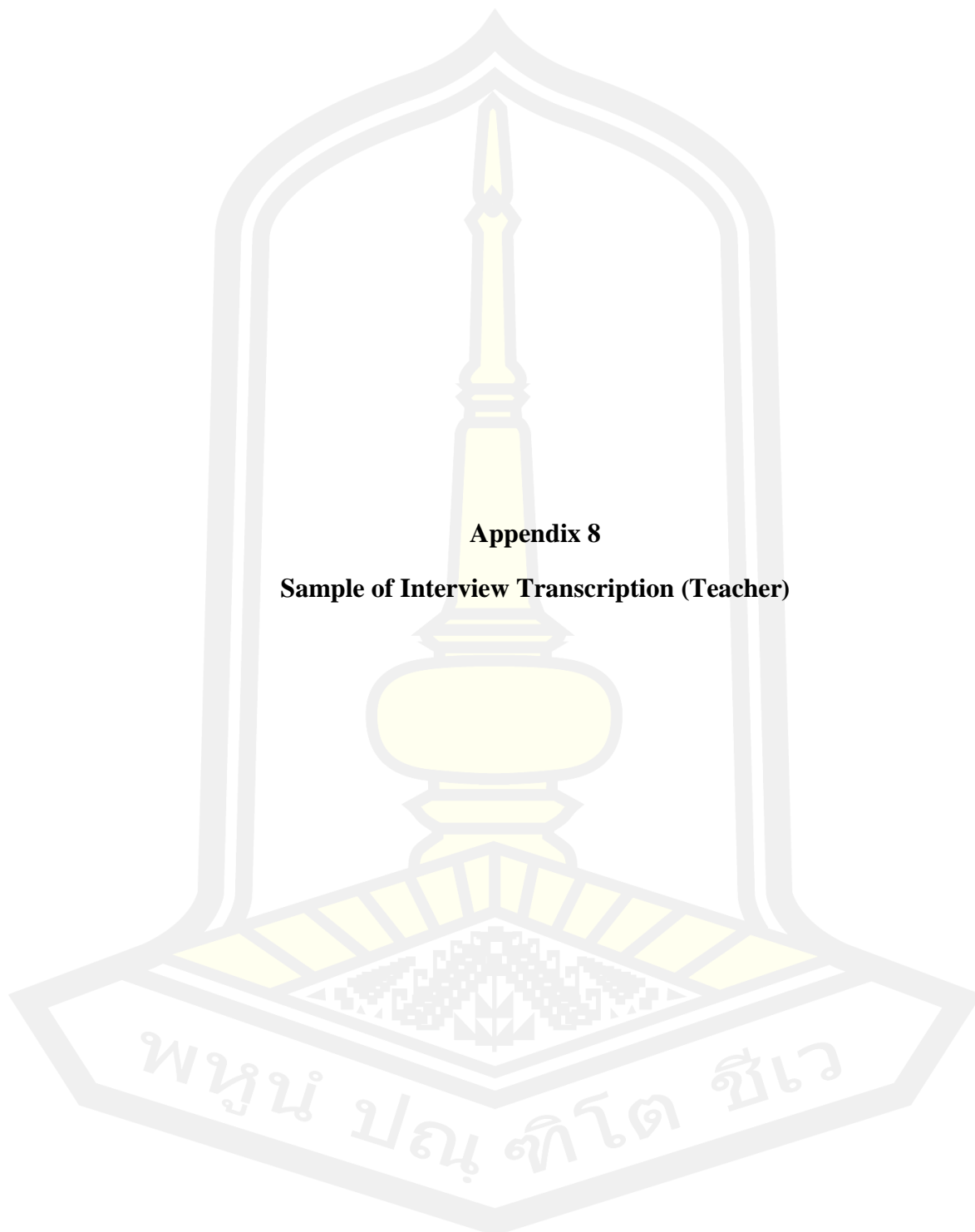
Appendix 8

Sample of Interview Transcription (Teacher)

Sample of Interview Transcription (Teacher)
Interview Transcription
Interview with teacher 3
Program: Telecommunication Engineering
Position: Associate Dean for Research and International Affairs

Prowsaeng: How do you feel? to teach in international programs

Teacher 3 : Talk about attitude towards international programs.There are two perspectives can be seen. First, is it necessary for the future of Thai students? We think that change in this globalization is very important. So, the international program or this English language skill is required. (PI)If they would like to go farther and develop the country.Second, teaching in English or International Programs where are the difficulties and obstacles? In my opinion, it can be divided into two parts. First one is International Programs based in Thailand environment, we are not yet ready to be international, which environment is very difficult to create internationally. so it became very difficult to provide a child with the potential or expected international skills. The second point is that the environment is not conducive and is already Engineering is a difficult science. When delivering the content, I am scared that they will not gain the principle, and if they can't gain the fundamental points, this is more scary than English. So when the environment and content fails, students will be weak on both sides and success won't happen. It will not be like an international program in Bangkok, for example, an international program. Engineering that can only be completed in Thailand is the course of SIIT (Sirindhorn International Institute of Technology), Sirindhorn International Institute of Technology under Thammasat University.

Prawsaeng: Yes, I'm listening to you. Do you think students should get the content rather than the language, right?

Teacher 3 : Well, we are worried that If the elements are not ready, the environment, the language is not. Students will not get anything at all. Therefore, it is suitable for some groups of children where language is not a barrier.

Prowsaeng: Yes, next, let's go to the point. Reasons for using Thai and English while teaching. How many percentages do you use Thai and English? in teaching in the classroom

Teacher 3: If it's part of the basic or technical term, English will be used entirely. And i'm a person who easily releases content in English. In the Thai language course, I will say that the use of English is 50 50 . The handout or slide is all in English.

Prowsaeng: So what's the strong and weak points in teaching content subjects in English? Let's begin with the strong points.

Teacher 3: There have been references to this theory, which is that the baby bird can pronounce it. and able to voice out correctly. They have to listen to them repeatedly, so being in an environment surrounded by English will improve their usage of the English language. And when I get the language, the answer is the world of Google and the Internet. When you have a problem you need to find an answer, you have to search, and most of the answers you get are in English, so a good engineer is not someone who knows the content, but someone who knows how to get the answer. And how to prove that the answer. And most of these processes are in English, so if the student does not know English, he will be someone who is slow to find answers, and can't fight other people.

Prowsaeng: Yes, teacher. English is like a tool to help you find answers. Teacher, what's the matter with weak points?

Teacher 3: The weak points, It's like mother crab and baby crab. If the teacher is bad at English with two things. At first, I believed that I could use English. Second, it's like being forced to use English and I can't speak it. And it turns out that the student got the language, but the copy is in English that doesn't work for everyone who will listen. And will it be useful?(ReEMI)

Prowsaeng: It's useless.

Teacher 3: Yes, that is, the students listen to this teacher, but when communicating with the rest of the world he doesn't understand.

Prowsaeng: Teacher, in this case, do you think that we should have foreign teachers come to teach as well?

Teacher 3 : As we take care of technology, we think that it is not necessary. The foreigner who lives here or where he is, is not necessary. We must use technology to benefit it, in order to adjust the various courses that suitable for Thai Students But create courses, courses, content to make it exciting, interesting, and make student want to learn. and now the content that the native speaker of the language he created. There are a lot of interesting things. Should go and build a Digital platform for it to be good. Teacher thinks that you should build a good platform first. and gradually bring in teachers who are good at English content because these things can be copied, but what engineers want the most is that the university must create a good platform for them to study.

Prowsang: What's your opinion toward using Thai language (L1) for teaching in international program?

Teacher 3: Why use it? Why do student pay for school? Shouldn't.

Prowsan: If you could adjust or develop language used in teaching, what aspect would you like to focus on? And how??

Teacher 3 : First,steps and processes for the mother bird to pronounce correctly (Role model)) so that the baby bird can communicate with the world. If this event doesn't work, then it's over. Teacher is important, If we would like to push the international course, If the teacher's qualifications can't do it, then we should create a digital platform and go find a good bird master abroad or somewhere else to teach. But it must be precisely the right pronunciation.

Prowsaeng: Please explain how to teach in the classroom. please give an example

Teacher 3 : Lately, I use e learning, use zoom to bring the kids to play Kahoot google platform Microsoft games.

Prowsaeng: The teacher has recommended teaching media resources. Let the children go to study and learn more?

Teacher 3 : YouTube is also available, but it's not very good for children to go see for themselves. We have to search and screen to see which media and content creators are right. Is this correct? Student will go to learn on their own. The content has to be correct first, and the latter suggesting that children search for this is like having a short, open course content course at MIT.

Prowsaeng: At the beginning, I told you about Obstacles in teaching subjects that are already in English. Therefore, please allow me to ask about the challenge of teaching subjects in English as well.

Teacher 3 : The first challenge for Thai student who come to study in International program is that most of them have financial potential.However, his potential is still low and study in a difficult course. The condition is that some study hard, some do not study, some are interested, some are not interested. Therefore, if it is us, we will support this normal Thai course, but to add or enhance the content of the English language skills of students entering the Thai curriculum because the student who enter the Thai curriculum are intentionally study potential and that will benefit the most

Prowsaeng: Yes, what English skill do you think is the most important? For students who have graduated to work as an engineer

Teacher 3: Depending on the level, if new graduates read and write because of contact via email However, if he becomes an executive, then communication skills are important, so speaking and listening will come second, so reading and writing must come first.

Prowsaeng: Yes, teacher. May I ask for one last request? On the subject of internationalization, please describe internationality. according to your ideas or understanding?

Teacher 3: If we are talking about internationality, it is global, it is 360 degrees, that means that the student himself is not only able to speak the language, but also the mentality, that is, the student must have quite high adaptability, which is the ability to Adapt and learn because there are many differences. And to be able to work with others, It's not that I'm good at English, and i'm good at work working at the level international, but tt must accept the

difference understand the difference to allow him to understand us global (IOc)

Prowsaeng: Teacher, in the Faculty of Engineering, is the project sending a lot of students to exchange?

Teacher 3: A lot, but now I can't go. Because of COVID-19 (international abroad)

Prowsaeng: Teacher, can you give an example? Which country is the exchange?

Teacher 3: There are Japan, America, France, England, many places. Lately, there are cooperatives nearby such as Malaysia, Vietnam.

Prowsaeng: Ye, before the interview ends. Would you like to give any recommendation?

Teacher 3 : Well, first of all, to be a good engineer, you have to cultivate the right attitude. The reason that Thai students don't go anywhere in language and attitude is that they are afraid to answer wrongly, which will make you not know what the right thing is. Comparing to foreign students with the process of learning, they adapting quickly, learning what is right and wrong, accepting it, so the keyword is adaptability.
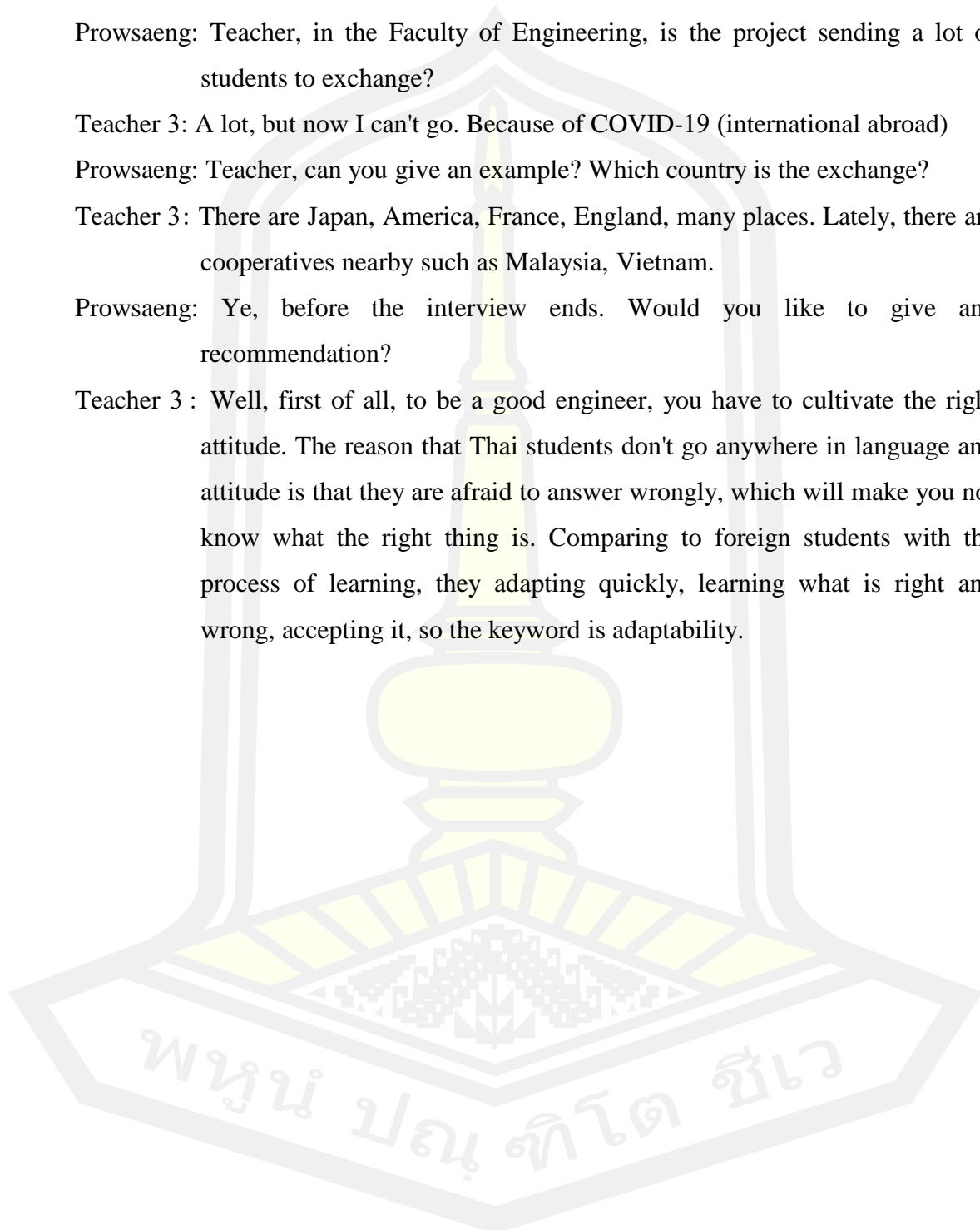
BIOGRAPHY

NAME	Ms. Prowsaeng Poosinghar
DATE OF BIRTH	02 Feb 1995
PLACE OF BIRTH	Khon Kaen
ADDRESS	350/84 Pimanthani Noonmuang Village 1, 8 alley, Muang Khon Kaen 40000
POSITION	International relation staff
PLACE OF WORK	International Affairs Division, Khon Kaen University 4th floor, Bimala Kalakicha building, Khon Kaen University 40000
EDUCATION	2016 Bachelor of Arts Program (B.A.) in Business English, Khon Kaen University 2022 Master of Education Program (M.Ed.) in English Language Teaching, Mahasarakham University