

## CHAPTER 1

### INTRODUCTION

#### 1.1 The Development of International Programs in Non-English Speaking Countries

English is the global language of business and education, and as a result, the international education sector has grown considerably during the past decade, driven by the force of the global knowledge economy (Marginson, 2007). Governments in non-English speaking countries (such as China, Hong Kong, Malaysia) have initiated and encouraged international programs within their higher education institutes to attract students and staff who have not had the opportunity to study abroad and to obtain an education compatible with the global economy. International programs are defined as those which use English language as the medium of teaching and learning.

Recruitment plans include China's expansive scholarship program which aims to attract international students from US to developing Africa. Taiwan is planning to invest 196 million dollars in higher education over the next four years which aims to attract 95,000 international students by 2014 (Madge, 2009). South Korea promises to lower health insurance premiums for overseas students, simplify immigration procedures and help international students find work in Korea after graduation. In Hong Kong, the government has doubled the non-local quota of overseas students at public universities to 20%, established a HK \$1.25 billion scholarship fund for domestic and foreign students, and increased part time and post study work rights.

Thailand has an aspiration to become a regional hub of education in Southeast Asia by supporting the growth of foreign branch campuses and twinning programs (bringing foreign education institutes to a host country) to offer international degrees more cheaply and conveniently than travelling overseas.

For Thailand, the internationalization, massification, and development of higher education also have significant obstacles, such as the low English proficiency of many international students, and competition from neighboring countries with a higher quality and reputation of education (Thomas, 2012). However, in order to position itself as an international education center, and regional hub, Thailand must place importance on the quality and standard of the international programs offered by higher education institutes and the international collaborative relationships in higher education.

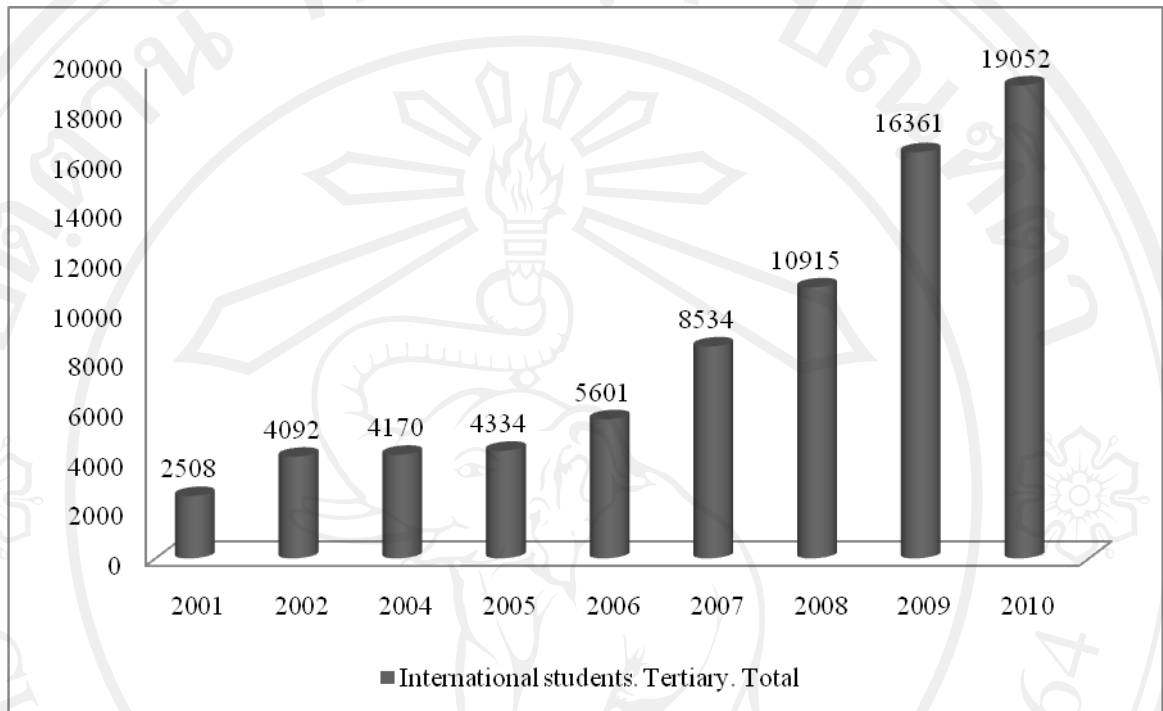
## **1.2 Thailand's Requirement for International University Programs**

Thailand is developing its higher education system, with the impacts of globalization, technological advances and a rapidly growing economy requiring Thailand's higher education to adjust itself to meet the needs of society (Marginson, 2007). The Thai government heavily promotes Thailand to international markets, and is planning expansion to become a central education hub in Southeast Asia (Thompson, March 2007). This aspiration of becoming a regional English as the common official language education hub has resulted in the Commission on Higher Education (CHE) launching an internationalization and regionalization program for higher education in order to meet the expected economic demands of the ASEAN region's workforce and to develop high-level English language skills for an

increasingly international and knowledge based society. Thailand's underlying higher education strategies are to promote international education programs and encourage student exchange with foreign institutions.

To achieve these aims and meet requirements, from 1990 to 2004, the CHE developed Thailand's first long-range plan for higher education development, with a more proactive and dynamic approach to increase students' expertise and accumulate staff experience in an international environment. For example, the CHE is actively involved in bilateral, trilateral, and multilateral agreements such as ASEAN, APEC and UNESCO, and through memorandums of understanding (MoUs) signed with countries in Asia, Europe, as well as North and South America. The CHE provides scholarships and support for exchange programs through University Mobility in Asia and the Pacific (UMAP), and via 144 exchange grants from Thai universities and countries in the Greater Mekong Subregion (Cambodia, Lao PDR, Myanmar, Southern China, Thailand and Vietnam). From 2000-2004, the Thai Government agreed to 5.5 billion baht in funding to create 150 doctoral programs inside Thai universities. The direct exposure and consistent interaction with global higher education partners has enabled Thailand to grow its higher education sector and prepare to meet demands of local regional, and international higher education. As a result of such preparation and growth, there are a significant number of international university programs in Thailand which aim to support the increasing internationalization of higher education and increased student mobility. Figure 1.1 shows the number of foreign students studying in Thailand increased substantially from 2,508 in 2001 to 19,052 in 2010. Despite the increase in foreign students and the

number of international programs, the organization, structure and quality of Thailand's international programs varies considerably.



\*Note: no data for 2003

Figure 1.1 Thailand's international student numbers 2001 – 2010  
(World Bank, 2012)

### 1.3 The State of Thailand's International Programs

As a reflection of Thailand's globalization and internationalization, Thai public and private higher education institutions now offer a wide variety of international programs. An International program is defined both by the language of instruction, and by the curriculum, which originates from another country such as the British National Curriculum, and American National Curriculum. The programs emphasize an international education taught through English rather than Thai that develops English skills. The distinction of international programs is not only an academic one, but also

philosophical, with the teaching methodology focused on different outcomes for students.

Many programs are delivered in collaboration with world renowned universities and provide opportunities for students to experience learning and living both in Thailand and abroad. For example, in the late 1980s, Mahidol University opened an international English language college, with enrollments for that college dramatically increasing over time (Winter, 2012). Other well-known public universities such as Chulalongkorn, Thammasat, Kasetsart, and Chiang Mai University have followed to establish provincial international programs to serve both Thai students who want an international education, and other students from the ASEAN region.

Assumption University, one of Thailand's major private universities and its first English language university, opened a state-of-the-art world class campus at Bangna in southeastern Bangkok, attracting students locally regionally, and globally, with 70 percent of graduate students being international. Another notable English language university emphasizing science, technology, and management is the Asian Institute of Technology (AIT), a major quality international technology and science oriented university, frequently referred to as the 'MIT of Asia.' In 2008, Thai public and private higher education institutions together offered a total of 884 international programs using English as the medium of instruction at undergraduate and graduate levels. Of these programs, there were 296 undergraduate programs, 350 masters degree programs, 215 doctoral degree programs, and 23 other programs. The significant and rapid increase in Thailand's international programs is illustrated in Figure 1.2.

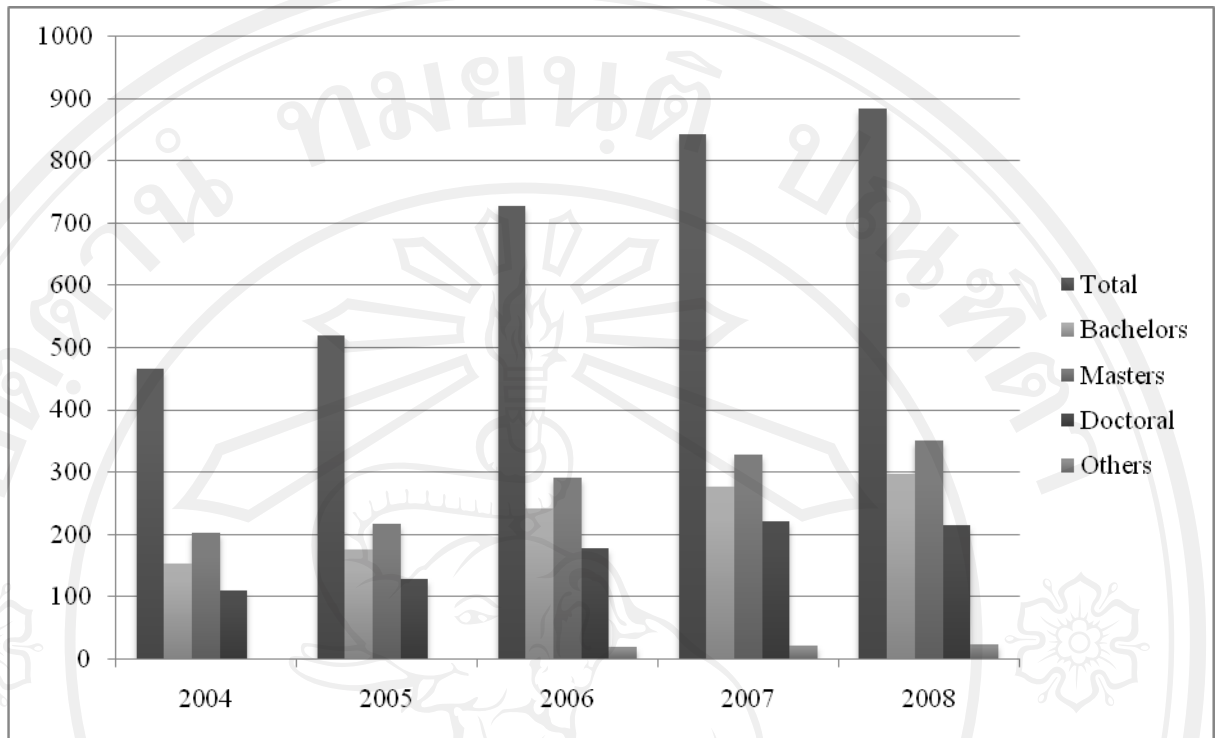


Figure 1.2 The Number of international programs in Thailand from 2004-2008

(Source: OHEC, 2008)

The number of international programs continues to increase to accommodate the needs of both Thai and foreign students. The increase in international programs is supplemented by local, regional and global education initiatives. Examples of such initiatives are shown in Table 1.1.

Table 1.1 Examples of Thai higher education institutes which set up international programs and initiatives.

Institutes	Purposes
1. ASEAN University Network (AUN)	strengthen ASEAN awareness and cooperation
2. Association of Southeast Asian Institutions of Higher Learning (ASAIHL)	encourages the exchange of faculty and students in the region
3. Southeast Asian Ministers of Education Organization (SEAMEO) Regional Center for Higher Education and Development (RIHED)	promotes international links among members in the Southeast Asian Region
4. Erasmus Mundus (a cooperation and mobility programme in the field of higher education)	enhances quality in higher education through scholarships and academic cooperation with Europe and the rest of the world
5. UNCTAD Thailand's most recent agreement	established an Institute of Trade and Development by providing training to developing countries on trade and the free trade world.

One of the key requirements of international university programs is that they must be conducted in English and develop English communication skills.

#### 1.4 English as an International language of Commerce and Education

English is well known as the international language of business and commerce (Marginson, 2007) and learning to speak and write English is therefore essential for non-English speaking countries who wish to compete in an increasingly globalised

economy (Antonio, 2006). The requirement for English skills has become more critical as society and the global economy has moved away from its traditional manufacturing base to become increasingly knowledge and innovation driven (International Business Publication, 2011). Knowledge and innovation are the drivers of developing economies in Southeast Asia, where there is a growing knowledge-based economy and desire to trade globally. Therefore, international university programs are required to meet the demands of globalization. In Thai higher education the entry requirement for applicants in terms of English are a minimum TOEFL score of 173 for the computer-based test, or IELTS band 5.5, as well as suitable academic credentials from their secondary education.

Despite these typical national and international tests, second language education highlights Common European Framework Reference (CEFR) as the new standard to the assessment of foreign language proficiency in parallel to the increase in international programs in Thailand and the developments in Thai higher education. To provide the clear and better understanding of the English significance in Thailand, these issues are presented in the following section.

### **1.5 Thailand's Issues with Learning English**

In Southeast Asian countries such as Malaysia, the Philippines, and Singapore, English is considered important both for international and domestic communication purposes, with English officially recognised as a second language (Ho, 2006). In contrast, Thailand has traditionally perceived English as a foreign language, which the nation uses predominantly for external contact, such as international politics, advanced education outside the country, as well as international media, culture and tourism



(Hayes, 2009). However, changes in the Southeast Asian region and the wider global economy mean there is a strong need for Thailand to improve its English skills (Hart-Rawung, 2008).

In Thailand, English is taught as a second language in schools and universities in order to enable the new generation to communicate, whether for academic, social or business purposes (Bennui, 2008). To meet the demands of the global economy and to cope with growing local and national demands for English skills, the Ministry of Education has launched new initiatives to provide Thai students with the relevant skills and knowledge to become autonomous learners.

English education in Thailand consists of at least twelve years of basic education before students enter tertiary education. Within the basic education system, the Thai Ministry of Education uses mostly Thai staff to teach English (Thomson, 2009). Thai English teachers often have a deep understanding of grammar rules, parts of speech, and have a large vocabulary, but most cannot integrate that knowledge to communicate effectively (Thomson, 2009). Even teachers who do speak reasonably well, often have pronunciation and syntax problems (Khamkhien, 2010) and as a result, students learn these errors. The method of using Thai teachers to teach English is standard practice across Thailand and is one of the causative factors of the Thai education system producing students with a generally poor level of English despite twelve years of ongoing instruction (Bennui, 2008).

Writing, in particular, is regarded as a difficult skill for second language learners. The errors in students' writing show that they face severe difficulties due to their lack of language proficiency (Bennui, 2008). Despite these difficulties, within the international programs of Thai universities, written English is used both as the

standard system of learning and communication, and as a tool for acquiring knowledge. Students who study English as a foreign language need written English skills ranging from simple paragraph composition and summary skills, to the ability to write essays and professional articles (William, 1996).

Ugray (2009) studied the educational differences between ESL students' from national and international school systems, and showed that co-operative learning, learning by discovery and critical thinking are associated with international schools, whilst memorization and rote-learning is emphasized in national schools. Indeed, memorization and rote-learning are common to the Thai teaching approach. This is partly related to the fact that Thais have traditionally considered the teacher's knowledge as reigning supreme in the classroom. As a result, the body of knowledge transmitted to students is expected to be committed to memory without question. As Sangnapaboworn (2003) explains, Thai teaching and learning places high emphasis on recall and memorization, even in higher education institutions. Such an approach does not cultivate students' analytical and critical skills, which are crucial in today's knowledge based societies.

In 2005, Thailand's Higher Education Commission development center reported that when rated by TOEFL (Test of English as a Foreign Language), the English proficiency of Thai students came eighth out of nine Southeast Asian countries, and when ranked by TOEIC (Test of English for International Communication), came fourth out of six countries in the region. It is argued that these poor results seriously affect the country's competitiveness in the global economy (Wongsothorn, 2005; Bolton, 2008; Bunnag, 2005a, 2005b).

While many studies have investigated problems associated with English as a Second Language (ESL), Bergh (2007) reveals that the most serious problem for Thai students when learning English language is their writing skills. Thomson (2009) elucidates by explaining that Thai students have a high degree of accuracy in certain written exercises, such as filling in a blank with the correct pronoun, article or verb tense, but in contrast, students can rarely write sentences or form a paragraph. Students are obstructed by factors such as language transfer, language interference, the modality of the target language production, and the instability of the learner's linguistic system (Richards, 1984). One possible framework to shift from memory and recall and enhance Thai students' English skill is constructionism.

### **1.6 Constructionism to Remediate Students' English**

In order to shift from the traditional, to a new educational setting, constructionism is proposed in this thesis to provide students with an intelligent learning environment combined with collaborative learning via social software. Constructionist theorists assume that knowledge is not transmitted from teachers to students, but constructed by students themselves when they interact with their environment (Piaget, 1981).

The constructionism foundation emphasizes 'teach less, think more', liberating technology, and knowledge relationships (Papert, 1991). With regard to computing, Papert (1980) proposed the concept of community students who play an important role in the learning process through discussions, collaborations, knowledge sharing, and communities which act as collaborators, coaches, audience, and co-constructors of knowledge.

To observe students' strengths and weakness in their written proficiency, error analysis as a remediation assessment tool is also suggested to analyze students' written work in depth. This process is to understand and explain the root cause of each error, and attempt to develop language treatment solutions.

### **1.7 Developing a Case Study: Chiang Mai University's International Programs**

Chiang Mai University (CMU) is the first institute of higher education in the north of Thailand, and the first provincial university with a mission to develop a comprehensive institution of higher learning with a broad range of academic programs. In the field of research, CMU has launched innovative initiatives and development projects which are leveraged to advance standards of teaching, learning and technology for the social and economic development of the region and country.

As the influence of internationalization becomes an essential factor higher education development, and in response to the growing demand for international-level programs, CMU offers both regular programs, taught in Thai, and international programs, taught in English, to more than 33,000 Thai and foreign students. The 296 regular programs comprise of 92 Bachelor's programs, 26 Graduate Diplomas, 127 Master's programs, 15 Higher Diplomas, and 36 Doctoral programs. The 85 international programs comprise 28 training courses, 12 cultural exchange courses, 22 academic exchange courses, 3 Bachelor's degree programs, 9 Master's degree programs, and 11 Doctoral degree programs. There is constructive interaction with more than 120 partners worldwide and the increasing number of international students illustrates that CMU is moving towards its goal of providing internationally compatible and competitive education.

To serve AEC 2015, the Thai government proposes Chiang Mai as ‘the education hub for Greater Mekong Sub-region (GMS) nations’. In parallel, CMU established College of Arts, Media and Technology (CAMT) to be an internationally leading college toward the excellence in creative technology and innovation as well as close the gap between local to Bangkok and international students.

#### *1.7.1 ASEAN ECONOMIC COMMUNITY (AEC) 2015*

According to changes in the global economy, the Association of Southeast Asian Nations (ASEAN) has promoted the creation of the ASEAN Economic Community (AEC) by 2015. This explicit blueprint leverages the European Union as a role model in terms of design, and development of the AEC 2015.

A key focus of the AEC’s blueprint is technology, which will integrate the ASEAN region into a single market and production base encompassing the technology sector, including the software industry (Software Park Thailand, 2011). As a result of the AEC 2015, skilled labor will flow freely within ASEAN member countries and there will be a significant movement of people, trade and culture throughout the ASEAN region (Federation of Thai Industry, 2012). The AEC 2015 has potential to generate both positive and negative impacts on labor migration in Asian countries, including Thailand.

Mutual recognition of professional qualifications, and university and technical education preparation, will require significant work. However, this process provides a good opportunity for the Southeast Asian region to embrace best practices such as professional skills in product testing, and technical standards. Mutual recognition will be necessary in these areas and, hence, harmonization of at least minimum acceptable

standards must be developed and codes should borrow from internationally accepted standards wherever possible.

In order to become competitive in the face of the AEC 2015 and take advantage of the potential opportunities, Thailand's future knowledge workers should enhance their educational and professional standards, and become proficient in English, especially written English, in order to meet the needs of industries and stakeholders of the ASEAN region. According to the needs of the AEC 2015, those working in the technology or software industry have a particular need for English proficiency.

#### *1.7.2 College of Arts, Media and Technology (CAMT) International Program*

The college was established in 2003 to fulfill governmental requirements which are 'to produce knowledge workers and innovation to compete in the fast growing industry', and 'to reinforce Chiang Mai to become the center of region in the tourism, handicraft, and software industries. In order to support such needs, CAMT offers six curricula which cover areas of animation, software engineering, modern management and technology, and knowledge management.

Of these curricula, the bachelor degree in software engineering is the only international program provided at CAMT. The main objective is to produce competent software engineers to meet the demands of the international software industry. As a result, the cooperative training program, and intensive project based learning are integrated into the curriculum for students to acquire knowledge and experience in preparation for a real workplace environment. As part of this curriculum, besides emphasizing professional skills, IT and English proficiency, CAMT follows level C1

of the Common European Framework of Reference for languages (CEFR) with the expectation that graduate students should reach level C1 at the British Council standards. The CEFR is integral for CAMT students for a variety of significant reasons.

Firstly, CEFR framework is 'Global scale' which covers three areas of communication namely understanding, speaking, and writing, to compare achievement and learning across languages. Secondly, the England's leading research universities such as Cambridge builds up Cambridge English Advanced, Cambridge ESOL's systems and processes for designing, developing (English for Speakers of Other Languages) key language test for higher education entry which is equivalent to the Certificate in Advanced English CEFR level C1 'advanced in general'. In parallel to this Dean of CAMT agrees to undertake level C1 as the English standard requirement for the graduation in software engineering international program as well as to lift the standard of SE students' English proficiency to international market place in which the graduates are emphasized on professional skills, IT and English proficiency.

Student admission requirements are English language proficiency based on a minimum IELTS score of 5.0, TOEFL score of 500 PBT (173 CBT or 61 IBT) or English National Test Level 4 (for Chinese Students), CUF (Common European Framework) Level A2, not older than two years. Applicants whose first or native language is not English must submit the required TOEFL or IELTS scores.

### *1.7.3 English Proficiency of Software Engineering (SE) Students*

New university students' English scores from an initial test 2008 to 2011 fall predominantly between 41-60, and few students achieved a score above 59, as

illustrated in Figure 1.3. These students therefore require remedial linguistic treatment programs if they are to achieve an appropriate level of English.

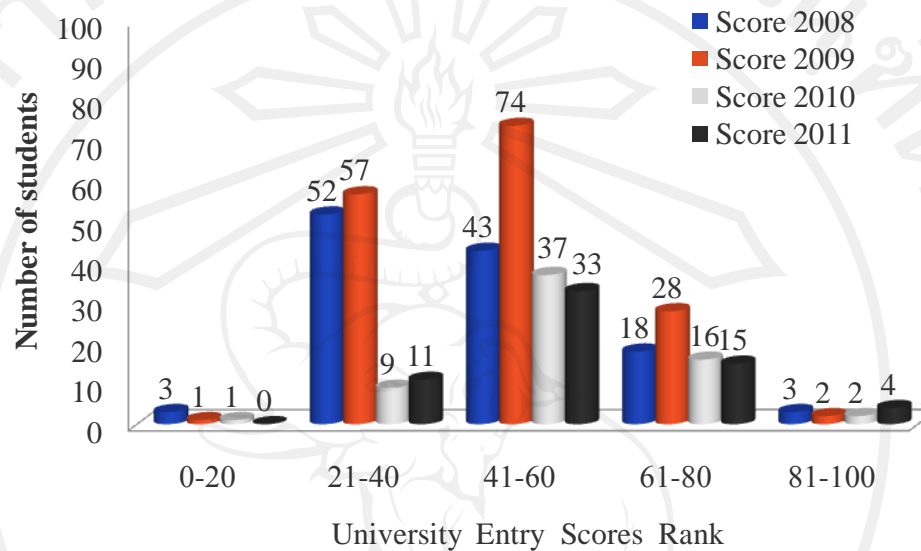


Figure 1.3 Software engineering students' initial English scores from CAMT  
2008 – 2011

Figure 1.4 illustrates the average English proficiency of new SE university students. The graph implies Thai students have low English proficiency in both communication and text production, which must be addressed in order to develop Thailand's competitiveness in the ASEAN Community.



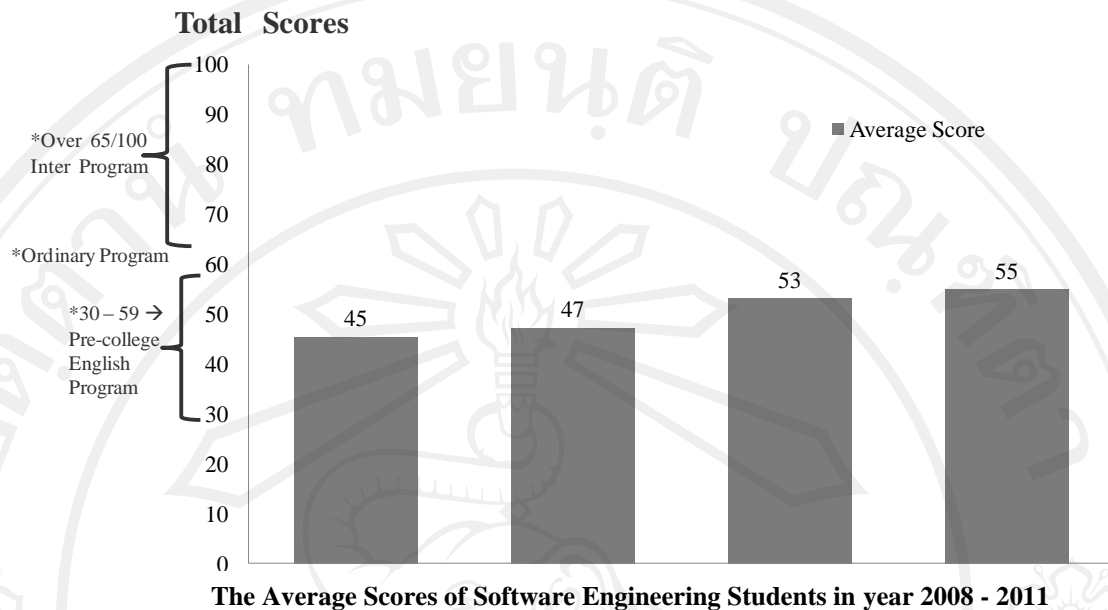


Figure 1.4 The average scores of Software Engineering students from  
2008 – 2011

Comparing speech to text production, many English as a Second Language (ESL) studies such as Bergh (2007), and Pawapatcharandom (2007) indicate that the most serious problem for Thai students in English language learning is their written English. The major problem is being unable to convert their thoughts to writing within a limited time. Writing skills require multi-cognitive skills to transfer the knowledge of the subject to the target language. Students are obstructed by factors such as language transfer, language interference, the modality of the target language production, and the instability of the learner's linguistic system (Richards, 1984).

Thailand's difficulties with learning English are well described in the literature and begin with students' basic education (Thomson, 2009). Although these problems begin in primary education, the focus of this thesis is on improving the English of Thailand's higher education students to support the requirement for developing the

English skill of knowledge workers. In addition, higher education is the final stage of an individual's formal education and represents the last opportunity to develop English skills before entering the workplace.

The thesis focuses on writing skills for two significant reasons. First, writing is considered to be a multi-cognitive skill and one of the hardest for English as a foreign language (EFL) students to effectively learn (Bennui, 2008), and thus learning to write should naturally enhance their speaking and reading skills (William, 1996). The second reason is that English tends to be the working language of business and most employers of software engineering graduates have high expectations of their written skills (Cilliers, 2012).

At CAMT an analysis of SE students' written paragraphs from 2010 to 2011 is illustrated in Figure 1.5 shows the errors students found most difficult. Within this text error level, the category with the highest number of error was grammatical (e.g. sentence structure, use of article, subject and verb agreement, phrase, plural -s, conjunction, parallel structure, run-on, and fragment), followed by lexis and semantic (e.g. wordiness, vocabulary selection or collocation, direct translation, and calque), and substance errors (e.g. punctuation, spelling).

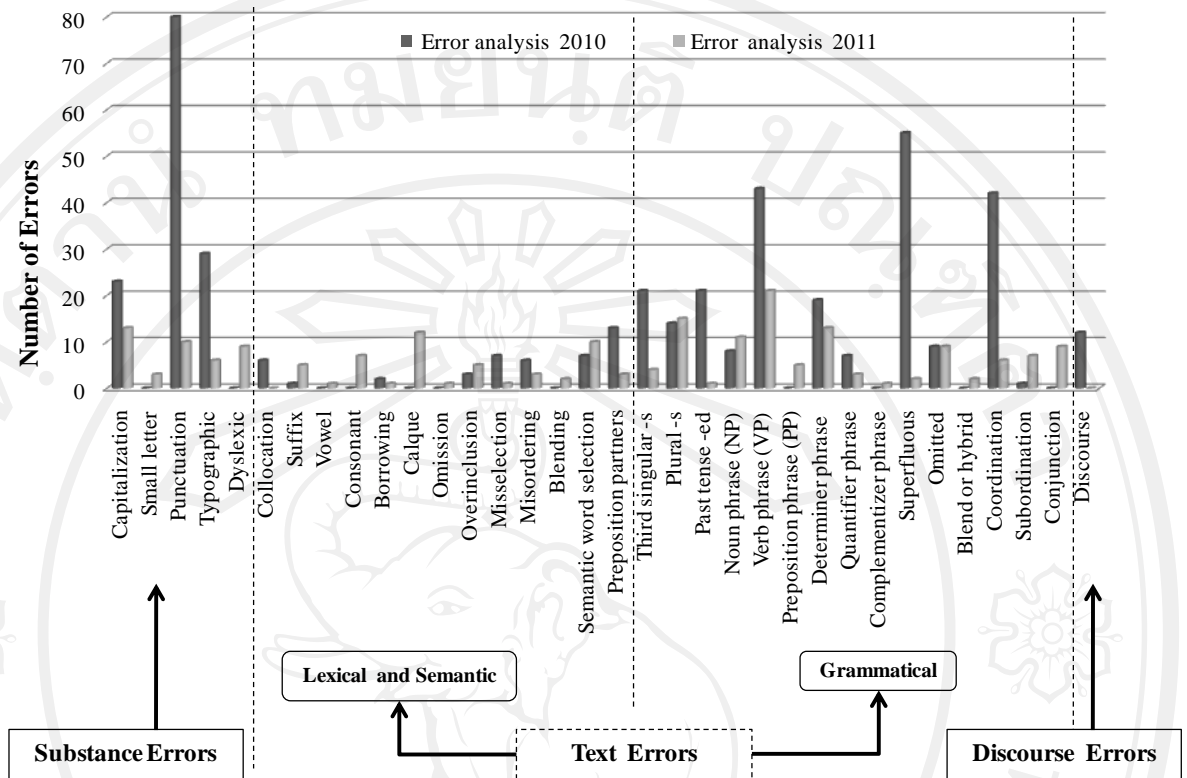


Figure 1.5 Frequency of errors of SE students' written English paragraph 2010-2011

To bring students with poor English proficiency to the international requirement level, the thesis hypothesis is to construct the remedial course based on constructionism and error analysis. Active English courses were proposed as the treatment to serve needs analysis in 'English skills requirement' for CAMT (as shown in Appendix D, p.216).

### 1.8 Scope of the Study

This thesis aims to create a remedial framework to enhance students' written English proficiency. The term remedial framework pertains to the need to remediate Thai students' English proficiency and bring it to the level required of an international university program as well as the requirements of the labour market beyond university.

Despite 12 years of ongoing English instruction during the primary and secondary phases of education, the majority of Thai students still lack appropriate English skills for today's knowledge-based society (Mehardad, 2012) hence the urgent need to remediate their level of English via the remedial framework presented in this thesis.

The research presented in this thesis is to understand and promote the written English proficiency of new Thai Software Engineering students at the College of Arts, Media, and Technology, Chiang Mai University (CMU). Experimentation and testing was implemented annually during summer semesters from 2008 to 2011 and utilized a framework based on constructionism, as well as an in-depth analysis of students' written language error using error analysis. The ultimate aim is for teachers and researchers to understand and provide solutions to facilitate remediation of such errors and improve the proficiency of software engineering students' written English within Thailand's higher education system.

### **1.9 Aims and Objectives**

**Aim:** to remediate the written English proficiency of software engineering students as well as assess the frequency and type of students' written English errors

This thesis investigates the writing English proficiency of software engineering students at a case study at CAMT, using error analysis, and a remedial framework using the theory of constructionism. There are five main objectives in this thesis, to meet the overall research aim.

1. To investigate the English proficiency needed from local and international knowledge based society through the interview and questionnaires of software engineering professionals.

2. To develop (i) English course contents grounded on SE professionals experience, and (ii) English remedial framework based on constructionism
3. To implement the framework, and assess students' writing English proficiency improvement by focusing on vocabulary, simple sentence, and written paragraph
4. To refine the remedial framework, reimplement and discover the strengths and weakness of SE new university students' writing English proficiency using error analysis as a key assessment tool.
5. To identify and specify written English problems of SE new university students using error analysis

### **1.10 Definition Terms**

In parallel to the thesis title, this section captures the four main definition terms namely English remedial course, constructionism, written English proficiency, and software engineering students.

English remedial framework refers to the pre-college English language course at College of Arts, Media and Technology in summer semester. This framework aims to bring students whose university entry scores (English) fall between 30 – 59 to the international program requirement level.

Constructionism means the proposed constructionism framework in language education. In this thesis, constructionism captures three domain aspects: software industrial requirements to core course contents, intellectual tools selection, and construction zone design. The constructionism framework aims to promote personally meaningful knowledge through learning by doing activities.

Writing English proficiency emphasizes writing skills of the target groups in year 2008 to 2011 prior and after they enroll the English remedial course. To measure the strength and weakness of the target writing abilities, error analysis is used as the language assessment tools to analyze each node error throughout the linguistic level hierarchy.

Software Engineering Students are the new university software engineering students in year 2008 to 2011 whose university entry scores (English) are between 30-59 and will be required to attend and pass the pre-college English remedial course at College of Arts, Media and Technology at their own expense.

Common European Framework of Reference (CEFR) means the global scales of international language which is used to capture software engineering students' learning rates both general English and professional English.

To get better understanding of the thesis, these four definition terms are clarify as well as highlighted through all chapters.

### **1.11 Thesis Structure**

#### *Chapter two: Literature Review*

This chapter summaries key theories and literature within this research and has five parts; part one provides an overview of constructionism; part two captures English teaching in Thailand; part three focuses English second language (ESL) while part four emphasizes the overview of knowledge worker of the thesis; part five aims to describe how these theories, techniques, learning ideas and strategies are leveraged in this thesis and come together in synergy to create the English remedial framework.

*Chapter three: Methodology*

This chapter presents the methodology for this research specifically, the tools and techniques to analyze the efficiency of 'remedial framework'. New software engineering university students who enrolled in the annual English course during the summer semester from 2008 to 2011 at the College of Arts, Media, and Technology act as the case study from an international program.

*Chapter four: Results, Analysis, and Discussion*

This chapter presents results, analysis, and discussion in correlation to the proposed methodology in chapter 3 as well as draws out the significant key findings in the thesis and takes these as the future study.

*Chapter five: Conclusion*

This chapter concludes the work and provides perspective with this innovation framework, the strength, weakness, and limitation, conceptualizes the future research, and presents the contribution of the thesis.