ปริมาณคำศัพท์ของนักศึกษาไทยเพียงพอต่อการสื่อสารที่มีประสิทธิภาพหรือไม่

Is Thai Students' Vocabulary Size Extensive Enough for Effective Communication?

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บทคัดย่อ

งานวิจัยนี้มีจุดประสงค์เพื่อ ศึกษาปริมาณคำศัพท์เพื่อการรับรู้ (receptive vocabulary) และคำศัพท์เพื่อการใช้ (productive vocabulary) ของนักศึกษาไทย ศึกษาความพร้อมของปริมาณคำศัพท์ของนักศึกษาไทย กลุ่มตัวอย่างที่ทำการศึกษาได้แก่ นักศึกษามหาวิทยาลัยสงขลานครินทร์ ใน 6 สาขาวิชา ซึ่งจะได้รับผลกระทบอย่างมากจากการเปิดการค้าเสรีอาเซียน ในปี 2558 ได้แก่ สาขาวิชาวิศวกรรมศาสตร์ การบัญชี แพทยศาสตร์ ทันตแพทยศาสตร์ พยาบาลศาสตร์ และการบริการและการท่องเที่ยว และ ศึกษาปัจจัยที่มีผลต่อปริมาณคำศัพท์ของนักศึกษาไทย ข้อมูลวิจัยได้เก็บรวบรวมจากเครื่องมือจำนวน 3 ชิ้น คือ 1) ข้อสอบวัดปริมาณคำศัพท์เพื่อการรับรู้ (receptive vocabulary) 2) ข้อสอบวัดระดับปริมาณคำศัพท์เพื่อการใช้ (productive vocabulary) และ 3) การสัมภาษณ์แบบกึ่งโครงสร้าง ผลการวิจัยพบว่า กลุ่มตัวอย่างรวมทุกสาขาวิชามีปริมาณคำศัพท์เพื่อการรับรู้ (receptive vocabulary) และคำศัพท์เพื่อการใช้ (productive vocabulary) เท่ากับ 5751.58 และ 1609.56 ตระกูลศัพท์ (word families) ตามลำดับ ในส่วนความพร้อมของปริมาณคำศัพท์ พบว่า ทั้งปริมาณคำศัพท์เพื่อการรับรู้ (receptive vocabulary) และคำศัพท์เพื่อการใช้ (productive vocabulary) ของกลุ่มตัวอย่าง ยังไม่เพียงพอสำหรับการใช้ภาษาที่มีประสิทธิภาพ จากผลการสัมภาษณ์พบว่า ปัจจัยด้านทัศนคติของนักศึกษาที่มีต่อภาษาอังกฤษและเข้าถึงภาษาอังกฤษอาจมีผลต่อระดับคำศัพท์ภาษาอังกฤษของนักศึกษา

คำสำคัญ : คำศัพท์เพื่อการใช้ คำศัพท์เพื่อการรับรู้ นักศึกษามหาวิทยาลัยไทย ความรู้คำศัพท์

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ABSTRACT

The purposes of the study were to: 1) examining the receptive and productive vocabulary size of Thai University students 2) investigate the readiness of the students' vocabulary knowledge. The subjects of this study were 347 Prince of Songkla University students in the 6 fields of study who would be highly affected by the upcoming ASEAN Economic Community (AEC) in 2015: engineering, accounting, medicine, dentistry, nursing, and hospitality and tourism and 3) explore the factors affecting their vocabulary knowledge. The research data were obtained through 3 instruments: the bilingual English-Thai version of the vocabulary size test, the productive vocabulary level test, and the semi-structured interview. The study revealed that the receptive and productive vocabulary size of the subjects in all fields were 5751.58 and 1609.56-word families, respectively. In terms of the readiness of the subjects' vocabulary knowledge, their receptive and productive vocabulary size was below the sufficient levels of effective language use. According to the interview, their attitudes towards English language and their exposure to the language may affect their level of vocabulary knowledge.

Keywords : productive vocabulary, receptive vocabulary, university students, vocabulary knowledge

Introduction

With the launch of the ASEAN Economic Community (AEC) in 2015, the free trade and services of all countries in South East Asia will be opened up and the competition of economies in the region will rapidly increase from the expansion of investment. Its effect will lead the labor market to become more open to member countries' workers. Skilled workers, especially in eight specific professions, namely, engineering, nursing, medicine, dentistry, architecture, hotel and tourism, surveying, and accounting will be allowed to work freely within the member countries. Thus, both work skills and English proficiency will become important factors for the labor force in terms of qualification requirement and employment opportunities. In Thailand, there are many concerns regarding getting Thai workers ready for the AEC and one of the concerns is their English proficiency (Saraithong and Chancharoenchai, 2012). To gain benefit from this open trade, it is necessary for Thai workers to be competent in English communication. It has long been recognized that English proficiency and vocabulary knowledge are closely related (e.g., Laufer, 1998; Nation and Meara, 2002).

Many researchers have considered vocabulary knowledge as an essential element in developing learners' language proficiency (e.g., Laufer, 1986; Knight, 1994; Hermann, 2003). According to Dubin and Olshtain (1986), a high vocabulary repertoire is a key to effective language use and low word knowledge can prevent learners from achieving language communication. Thus, vocabulary is an important factor in reflecting learners' English language skills.

There have been many attempts to distinguish between different types of vocabulary knowledge. For instance, Henriksen (1999) classifies this knowledge into three-dimensional models: partial vs. precise, shallow vs. deep, and receptive vs. productive. Palmer (1921) and West (1938) use the terms receptive and productive vocabulary. Out of many proposed models of vocabulary knowledge, most models distinguish between receptive and productive vocabulary knowledge (Laufer, 1998). Nation (1990) and Schmitt (2010) define receptive vocabulary as the ability to recognize the words form and retrieve the meaning of words while listening or reading. Productive vocabulary is the ability to retrieve and produce the appropriate forms through speaking or writing. These two types of vocabulary represent different aspects of knowledge; receptive word knowledge involves the ability to read or listen while productive vocabulary involves the ability to write or speak.

The measuring of students' receptive and productive vocabulary size is important for a number of reasons. For instance, information about students' vocabulary size can be a benefit for teachers to design a course syllabus or material for each particular group of students. If teachers know students' receptive and productive vocabulary levels, they will be able to plan how much time they should spend on teaching vocabulary or what type of vocabulary knowledge learners should focus on. In addition, the results of learners' vocabulary size can predict their proficiency in other language skills. Research has shown that vocabulary is a crucial component of any languages (Nation, 1993), so a lack of skill in this area can be the cause of poor performance of language skills.

With regard to the above discussion, researchers have paid attention to the learners' vocabulary size and the required vocabulary level for effective use of language. A number of researchers have proposed ranges of necessary lexical knowledge for achieving English language proficiency. For example, Waring and Nation (1997) propose that 2000-3000 word families are needed for speaking and writing. Schmitt et al. (2001) suggest that the vocabulary knowledge of 2000 word families is necessary for oral communication and 5000 word families are needed for reading authentic texts. Laufer (1992) supports that word knowledge of around 5000 word families, which allows learners to know 95% of the running words in a text, enables students to read independently (Laufer, 1992). According to Hirsh and Nation (1992) and Hu and Nation (2000), learners need to know 98% of running words in the text for the adequate comprehension. Nation (2006) took the ideal text coverage of 98% to investigate the needed vocabulary size and the results showed that 6000-7000 word families are important for spoken text and around 8000-9000 word families are adequate for written text.

The number of unknown words in spoken or written texts can affect learners' reading and listening, so it is crucial to know what amount

of text coverage is enough for language comprehension. Text coverage refers to the number of running words in spoken and written texts that are known by learners. Hirsh and Nation (1992) found that if learners know 80% of words in a text, they would likely have 20 unknown words in

every 100 (or 2 unknown words per line). With text coverage of 90%, there are 10 unknown words in every 100 (or 1 unknown word on each line). With text coverage of 95%, there is 1 unknown word in every 20 (or 1 unknown word in every 2 lines). According to Hu and Nation's study (2000) on text coverage and reading proficiency, the ideal text coverage for comprehension was found to be 98% of running words. Learners with the knowledge of 98% of text coverage will get 1 unknown word in every 50 (or 1 unknown word in every 5 lines). However, Carver (1994) argued that text coverage of 98% does not usually make learners understand the text easily.

Much research on L2 learners' vocabulary size around the world has shown that their receptive vocabulary knowledge is less than 6000 word families and their productive vocabulary knowledge is lower than 2000 word families which are considered the sufficient vocabulary size for receptive and productive language skills, respectively (e.g., Laufer, 1998; Nurweni and Read, 1999; Zhiying, 2005). For example, Laufer's study (1998) showed that Israeli high school graduates have the receptive vocabulary of 3500 word families. Nurweni and Read (1999) revealed that the receptive vocabulary of Indonesian university students was at 1226 word families. In addition, Zhiying (2005) found that Chinese university students had receptive and productive vocabulary size of 3348 and 1456 word families, respectively, and receptive and productive vocabulary size of Thai university students was 3021 and 1118 word families, respectively.

As discussed above, vocabulary knowledge has been proven to positively and significantly affect learners' language achievement. Thus, it is worthwhile to study the receptive and productive vocabulary size of L2 learners as well as the readiness of their vocabulary knowledge for each language skill.

This present study focused on a group of Prince of Songkla University students studying in the 6 of 8 specific professional groups under the AEC agreements: engineering, nursing, medicine, dentistry, hotel and tourism, and accounting. University students were selected as participants in this study because they were considered to be representatives of a large proportion of skilled workers in the Thai labor market and the students in those 8 fields of study would be highly affected by the opening up of trade in 2015. This present research was limited to only 6, instead of 8, fields of study because Prince of Songkla University, where the research was conducted, offers only 6 fields of professionals.

Research Questions

1. How large is the receptive and productive vocabulary knowledge of Prince of Songkla University students in the 6 fields of study?

2. Is the students' vocabulary sufficient to communicate?

3. What factors affect their vocabulary knowledge?

Research Methodology

Subjects

The subjects of this study were third-year undergraduate students studying in the 6 target fields of study which would be highly affected by the upcoming AEC in 2015 namely engineering, accounting, medicine, dentistry, nursing, and hospitality

and tourism at Prince of Songkla University. The numbers of subjects in each field of study were 152 engineering students, 27 accounting students, 47 medical students, 29 dental students, 55 nursing students, and 37 hospitality and tourism students. These 347 subjects were drawn from a population of 1,352 using a combination of proportional stratified sampling and simple random sampling.

Research Instruments

The instruments used in this study were the bilingual English-Thai version of the vocabulary size test, the productive vocabulary level test, and a semi-structured interview.

1. The Bilingual English-Thai Version of Vocabulary Size Test

The bilingual English-Thai version of the vocabulary size test, adapted from the monolingual English version of the vocabulary size test (Nation and Beglar, 2007), aimed to assess learners' receptive vocabulary size. The monolingual test consisted of 140 multiple choice questions; each question had 4 possible answers. There were 10 items from each of 14th 1000 word levels. The English-Thai version test kept all the features of the monolingual English version test except for the language used in the cases. In other words, the alternatives in the English version test were translated into Thai. This translation decreases the influence of the unknown words appearing in the choices and increases the validity of the test (Lado, 1967; Laufer and Shmueli, 1997). Furthermore, the fifth option "I don't know" was added to the test to prevent guessing. The translation of the text from English into Thai was checked by 2 experienced translation specialists. The reliability of the bilingual version test was .903. In the test, learners were asked to choose the option which had the closest meaning to the word in bold. The example, item 51 from the 6th 1000 word level is as follows:

1. devious: Your plans are **devious.**
   a. มีเล่ห์เหลี่ยม
   b. ซึ่งพัฒนามาอย่างดี
   c. ขาดการไตร่ตรอง
   d. ราคาแพงเกินความจำเป็น
   e. ไม่ทราบคำตอบ

2. The Productive Vocabulary Levels Test

This test was developed by Laufer and Nation (1999) aiming to measure the learners' productive vocabulary size. The test had 90 items with 5-word levels, 2000, 3000, 5000, 10000, and the university word list (UWL). Each word level contained 18 items. Each item contained one meaningful sentence with one missing the word (target word). The first letters of each target word were provided to prevent learners from filling untargeted words. The UWL was not included in the test because this study aimed to investigate learners' productive vocabulary knowledge in general. In the test, learners were asked to complete the underlined words. The example, item 44 from the 5th 1000 word level, is as follows: 44. He received many com-on his dancing skill.

3. Semi-Structured Interview

This semi-structured interview was used to get in-depth information about the history of the subjects' English language learning and attitudes towards English. Eight high vocabulary subjects and 8 low vocabulary subjects on both receptive and productive vocabulary tests would be interviewed for about 15 minutes each. The interview was recorded and the researcher took notes during the interview.

Data Collection

First, all the 347 subjects were required to take the bilingual English-Thai version of the vocabulary size test and the productive vocabulary levels test. There was no time limit for these two tests. The subjects could spend as much time as they want because the objectives of the tests were to assess their vocabulary knowledge, not their speed in completing the test. Approximately, 2 hours were spent on the two tests. Later, 8 high vocabulary subjects and 8 low vocabulary subjects on both receptive and productive vocabulary knowledge tests were interviewed to get more information about their history of English language learning and their attitudes towards The English language.

Data Analysis

1. Scoring Method of the Two Vocabulary Tests

In scoring the bilingual English-Thai version of vocabulary size test, a correct answer got 1 point and an incorrect answer got zero. The subjects who selected all the right answers from the 140 item test received full points of 140.

For the scoring of the productive vocabulary level test, the subjects received 1 point for each correct word. The subjects got a score if though their answer was grammatically wrong or had minor spelling mistakes which had the same pronunciation or did not deform the word ("raor" was used in place of "roar"). However, the word was marked as incorrect if its meaning did not match the provided sentence. The subjects answering with wrong spelling such as confusing the use of "l" and "r" received zero.

2. Estimating Vocabulary Size

To establish the subjects' receptive vocabulary size, their total scores from the bilingual English-Thai version of the vocabulary size test needed to be multiplied by 100 (Nation and Beglar, 2007). For the subject who scored 35 out of 140, his receptive vocabulary size was 3500 word families.

The estimation of productive vocabulary size in this present study was based on Laufer (1998). The subjects' scores from the productive vocabulary level test were calculated as follows: *[(2000 productive score x 2) + 3000 productive score + 5000 productive score + ((3000 productive score + 5000 productive score) / 2) + ((5000 productive score + 10000 productive score) / 2 x 4) + 10000 productive score)] / 180 x 10000*

3. Statistical Analysis

Descriptive statistics were used to compute the mean scores and standard deviations of the subjects' receptive and productive vocabulary size.

Results

Research Question 1: How large is the receptive and productive vocabulary knowledge of Prince of Songkla University students in the 6 fields of study?

1. Receptive Vocabulary

Table 1 illustrates the receptive vocabulary size of Prince of Songkla University (PSU) student subjects in the six fields of study.

Table 1: Receptive vocabulary size of PSU students in the 6 fields of study

Vocabulary size (word families)	Number of students						
	Medicine	**Dentistry**	**Accounting**	**Hospitality And Tourism**	**Engineering**	**Nursing**	**All fields**
	n = 47	**n = 29**	**n = 27**	**n = 37**	**n = 152**	**n = 55**	**n=347**
11000 (11000-11999)	2%	-	-	-	-	-	0.5%
10000 (10000-19999)	-	-	-	-	-	-	-
9000 (9000-9999)	2%	3%	-	-	-	-	1%
8000 (8000-8999)	25%	14%	4%	8%	4%	-	8%
7000 (7000-7999)	25%	28%	26%	19%	5%	7%	13%
6000 (6000-6999)	29%	28%	37%	19%	14%	16%	18%
5000 (5000-5999)	15%	24%	29%	27%	34%	27%	28%
4000 (4000-4999)	2%	3%	4%	11%	28%	35%	20%
3000 (3000-3999)	-	-	-	16%	11%	13%	9%
2000 (2000-2999)	-	-	-	-	3%	2%	2%
1000 (1000-1999)	-	-	-	-	1%	-	0.5%
Mean	**7236.17**	**6789.65**	**6411.11**	**5843.24**	**5197.37**	**5081.82**	**5751.58**
S.D.	**1270.64**	**1115.27**	**901.42**	**1523.62**	**1297.78**	**1113.90**	**1475.59**

According to Table 1, the average receptive vocabulary size of the subjects in the six fields was 5751.58 word families. The average receptive vocabulary size of the subjects in each field was also considered. The subjects from medicine had the highest vocabulary size among all fields (7236.17 word families), followed by the subjects from dentistry (6789.65 word families), accounting (6411.11 word families), hospitality and tourism (5843.24 word families), engineering (5197.37 word families), and nursing (5081.82 word families),respectively.

The majority of the subjects (28%) in all fields had a receptive vocabulary level of 5000 word families. For consideration of the subjects in each field, the majority of subjects from dentistry (28%) had a receptive vocabulary level of 7000 word families, the majority of subjects from medicine and accounting (29%, 37%, respectively) acquired a receptive vocabulary level of 6000 word

families, the majority of subjects in the two fields, namely, hospitality and tourism and engineering (27% and 34%, respectively) had a receptive vocabulary level of 5000 word families, and the majority of the subjects from nursing (35%) acquired a receptive vocabulary level of 4000 word families.

The results of the subjects' highest and lowest receptive vocabulary size are presented in Table 2.

Table 2: Maximum and minimum receptive vocabulary size of PSU students in the 6 fields of study

Fields of study	n	Maximum vocabulary size		Minimum vocabulary size	
		Word families	Number of students	Word families	Number of students
Medicine	47	11000	2%	4000	2%
Dentistry	29	9000	3%	4000	3%
Accounting	27	8000	4%	4000	4%
Hospitality and Tourism	37	8000	8%	3000	16%
Engineering	152	8000	4%	1000	1%
Nursing	55	7000	7%	2000	2%
All fields	**347**	**11000**	**0.5%**	**1000**	**0.5%**

The highest receptive vocabulary level of the subjects in the six fields was 11000 word families. Only 0.5 percent of subjects scored at this level. The lowest receptive vocabulary level was 1000 word families. Zero point five percent of the subjects scored at this level.

When the highest and lowest receptive vocabulary knowledge of the subjects in each field was examined, the findings showed that the subjects from medicine had the highest level of 11000 word families, which was the highest level of all fields, dentistry at 9000 word families, accounting, hospitality and tourism, and engineering at 8000 word families each. The subjects from nursing acquired the highest receptive vocabulary level of 7000 word families, being the lowest compared to the other fields.

The lowest receptive vocabulary level of the subjects of medicine, dentistry, and accounting were 4000 word families each, hospitality and tourism 3000 word families, nursing 2000 word families, and engineering 1000 word families, being the lowest compared to other fields of study.

2. Productive Vocabulary

The analytical results of productive vocabulary knowledge of Prince of Songkla University (PSU) student subjects in the six fields of study are shown in Table 3.

Table 3: Productive vocabulary size of PSU students in the 6 fields of study

Vocabulary size (word families)	Number of students						
	Medicine	Dentistry	Hospitality &Tourism	Accounting	Engineering	Nursing	All fields N=347
	N = 47	N = 29	N = 37	N = 27	N = 152	N = 55	
6000 (6000-6999)	2%	-	-	-	-	-	0.5%
5000 (5000-5999)	2%	-	-	-	-	-	0.5%
4000 (4000-4999)	6%	7%	-	-	1%	-	2%
3000 (3000-3999)	24%	28%	19%	-	3%	-	9%
2000 (2000-2999)	55%	31%	49%	15%	8%	-	20%
1000 (1000-1999)	11%	34%	32%	63%	41%	44%	37%
Below 1000 (0-999)	-	-	-	22%	47%	56%	31%
Mean	**2826.83**	**2599.14**	**2324.32**	**1466.05**	**1135.42**	**947.47**	**1609.56**
S.D.	**999.15**	**841.11**	**786.92**	**513.41**	**740.37**	**359.43**	**1020.60**

As shown in Table 3, the average productive vocabulary size of the subjects in all six fields equaled to 1609.56 word families. When a closer look was taken at the productive vocabulary size of the subjects in each field, it was found that the subjects in medical field had the highest average productive vocabulary size (2826.83 word families), followed by the subjects in dentistry (2599.14 word families), hospitality and tourism (2324.32 word families), accounting (1466.05 word families), engineering (1135.42 word families), and nursing (947.47 word families), respectively.

The majority of the subjects in all fields (37%) had a productive vocabulary level of 1000 word families. When each field of study was considered, the majority of the subjects from medicine, and hospitality and tourism (55% and 49%, respectively) acquired a productive vocabulary level of 2000 word families, the majority of the subjects from dentistry and accounting (34% and 63%, respectively) 1000 word families, and the majority of the subjects from engineering and nursing (47% and 56%, respectively) below 1000 word families.

According to the results of the receptive and productive vocabulary size of the subjects in each field, it could be seen that the subjects in the medical field obtained the highest level of both types of vocabulary knowledge, followed by subjects from dentistry, while the subjects from nursing had the lowest level of both types of vocabulary compared to the subjects in the other fields.

Table 4 presents the highest and lowest productive vocabulary levels of the subjects in the six fields of study.

Table 4: Maximum and minimum productive vocabulary levels of PSU students in the 6 fields of study

Fields of study	n	Maximum vocabulary size		Minimum vocabulary size	
		Word families	Number of students	Word families	Number of students
Medicine	47	6000	2%	1000	11%
Dentistry	29	4000	7%	1000	34%
Hospitality and Tourism	37	3000	19%	1000	32%
Accounting	27	2000	15%	Below 1000	22%
Engineering	152	4000	1%	Below 1000	47%
Nursing	55	1000	44%	Below 1000	56%
All fields	**347**	**6000**	**0.5%**	**Below 1000**	**31%**

As shown in Table 4, only 0.5 percent of the subjects in all fields acquired the highest productive vocabulary level at 6000 word families, while 31 percent of them had the lowest levels of below 1000 word families.

When the highest and lowest productive vocabulary levels of the subjects in each field were considered, the findings showed that the subjects from medicine had the highest vocabulary level of 6000 word families, which was the highest level compared to the other fields. The subjects from dentistry and engineering had the highest productive vocabulary level of 4000 word families, hospitality, and tourism 3000 word families, accounting 2000 word families and nursing 1000 word families which were the lowest among all fields.

The lowest productive vocabulary level of the subjects from medical, dental, and hospitality and tourism fields was the same, at 1000 word families. Furthermore, the lowest productive vocabulary of the other three fields, namely, accounting, engineering, and nursing was below 1000 word families which were the lowest compared to the other fields. It is interesting to note that the highest productive vocabulary level of the subjects of nursing was equal to the lowest level of the subjects from medicine, dentistry, and hospitality and tourism.

According to the results of the receptive and productive vocabulary size of the subjects in each field, it could be seen that the subjects in the medical field obtained the highest level of both types of vocabulary knowledge, followed by subjects from dentistry, while the subjects from nursing had the lowest level of both types of vocabulary compared to the subjects in the other fields.

Research Question 2: Is the students' vocabulary extensive enough?

Receptive vocabulary knowledge affects learners' reading and listening skills. Those with high receptive vocabulary knowledge are more successful in reading and listening than those with low receptive vocabulary knowledge (Golkar and Yamini, 2007). In order to listen and read effectively, a reader or listener should have receptive vocabulary knowledge that covers 98 % of the running words in texts (Hu and Nation, 2000). According to the 98% coverage level, a receptive vocabulary of at least 6000 word families is required for effective listening and 8000 word families for reading (Nation, 2006).

In addition, a productive vocabulary level is critical to the ability to speak and write (Laufer and Nation, 1995; Schmitt, 2000; Daller et al., 2003). The productive vocabulary knowledge that is sufficient for writing and speaking is more than 2000 word families (Waring and Nation, 1997). Productive vocabulary knowledge of below 2000 word families made it difficult for students to speak or write effectively.

The percentages of the subjects obtaining a receptive and productive vocabulary of above the sufficient vocabulary for reading, listening, speaking, and writing is shown in Table 5.

Table 5: Number of PSU students with a receptive vocabulary size of above 6000 and 8000 word families and with the productive vocabulary size of above 2000 word families

Fields of study (N)	Receptive vocabulary size (word families)			Productive vocabulary size (word families)	
	Average	greater than or equal to 6000	greater than or equal to 8000	Average	greater than or equal to 2000
Medicine (47)	7236.17	83%	29%	2826.83	89%
Dentistry (29)	6789.65	73%	17%	2599.14	66%
Accounting (27)	6411.11	67%	4%	1466.05	15%
Hospitality and Tourism (37)	5843.24	46%	8%	2324.32	68%
Engineering (152)	5197.37	23%	4%	1135.42	12%
Nursing (55)	5081.82	23%	0%	947.47	0%
All fields (347)	**5751.58**	**40.5%**	**9.5%**	**1609.56**	**32%**

The results shown in Table 5 demonstrate that the average receptive vocabulary size of the subjects in all six fields was 5751.58 word families. This amount of receptive vocabulary was lower than 6000 and 8000 word families considered to be the needed size for listening and reading, respectively. There were 40.5 percent of the subjects, who acquired receptive vocabulary knowledge higher than 6000 word families, and only 9.5 percent had a receptive vocabulary knowledge higher than 8000 word families. In terms of productive vocabulary, the average productive vocabulary size of the subjects was 1609.56 word families, which was lower than 2000 word families considered to be sufficient for speaking and writing. Only 32 percent of the subjects had productive vocabulary knowledge higher than 2000 word families.

As a result, 59.5 percent of the subjects in all six fields would have problems with listening, 90.5 percent with reading, and 68 percent with speaking and writing. These problems occurred because the subjects had a receptive and productive vocabulary size lower than the required amount in the various English skills. Of the 347 subjects in the six fields of study, it was found that the subjects with sufficient vocabulary and with no problems in listening were medical students (7236.17 word families), dentistry students (6789.65 word families), and accounting students (6411.11 word families). Fields with adequate vocabulary size to use in speaking and writing

were medicine (2826.83 word families), dentistry (2599.14 word families), and hospitality and tourism (2324.32 word families). It is interesting to note that the subjects of all fields would have difficulty with reading because their average receptive vocabulary size was lower than 8000 word families.

In each field of study, the subjects from medical field acquired an average receptive vocabulary size of 7236.17 word families which was higher than the adequate level of listening to 6000 word families, but still below the needed level for reading at 8000 word families. Eighty-three percent of the subjects from medicine had a receptive vocabulary size of more than 6000 word families, and 29 percent had a receptive vocabulary size above 8000 word families. Regarding productive vocabulary, the average productive vocabulary size of the subjects of this field was 2826.83 word families, which was higher than the needed amount for speaking and writing at 2000 word families. There was 89 percent who acquired productive vocabulary higher than 2000 word families.

It may be concluded that two-thirds of the subjects from medicine would have difficulty with reading because they had receptive vocabulary knowledge of less than 8000 word families. Although their average vocabulary size was enough for listening (7236.17 word families), speaking and writing (2826.83 word families), 17 percent of them would have problems with listening, and 11 percent would have problems with speaking and writing.

The subjects in the dental field acquired the average receptive vocabulary size of 6789.65 word families which was higher than 6000 word families considered to be essential for listening but still below the sufficient level for reading at 8000 word families. Only 17 percent of the subjects in this field had receptive vocabulary knowledge higher than 8000 word families while 73 percent higher than 6000 word families. A closer look at the amount of productive vocabulary knowledge of the subjects showed that their average size was 2599.14 word families, which was higher than the sufficient level to speak and write at 2000 word families. There were 66 percent of the subjects who had a productive vocabulary size of more than 2000 word families.

So, based on the data mentioned above, it may be concluded that 4 in 5 of the subjects in dentistry would face problems with reading, which was caused by a lack of receptive vocabulary knowledge at 8000 word families. Although their average receptive and productive vocabulary was adequate for listening (6789.65 word families), speaking and writing (2599.14 word families), one-third of them had vocabulary less than the adequate vocabulary size to be used effectively in the skills of listening, speaking, and writing.

The average receptive vocabulary size of the subjects from accounting was 6411.11 word families. This was higher than 6000 word families which are essential for effective listening, but less than the sufficient level for effective reading at 8000 word families. Sixty-seven percent of the subjects acquired receptive vocabulary knowledge of more than 6000 word families, and only 4 percent had the receptive vocabulary of more than 8000 word families. Their average productive vocabulary knowledge was 1466.05 word families which were below the sufficient size for speaking and writing at 2000 word families. Only 15 percent acquired a productive vocabulary size of above 2000 word families.

Therefore, based on their receptive and productive vocabulary knowledge, 96 percent of the subjects from accounting would have difficulty with reading, 85 percent with speaking and writing. Although the average amount of their vocabulary was enough for effective listening, one-third of them acquired receptive vocabulary knowledge of below 6000 word families, and this results in a problem with listening.

The subjects from hospitality and tourism had the average receptive vocabulary size of 5843.24 word families which was below the level that could be used in effective listening (6000 word families) and reading (8000 word families). Forty-six percent of them acquired a receptive vocabulary size of above 6000 word families, and only 8 percent had a receptive vocabulary of above 8000 word families. In terms of the average productive vocabulary of the subjects in this field, their average productive vocabulary size was 2324.32 word families which were higher than the adequate number of speaking and writing at 2000 word families. Out of all these subjects, there was sixty-eight percent who had a productive vocabulary size of more than 2000 word families.

From the two types of vocabulary knowledge, it may be concluded that 92 percent of the subjects from hospitality and tourism would have problems using vocabulary in reading, 54 percent would have problems with adopting vocabulary in listening because of a lack of the adequate receptive vocabulary knowledge. Although the average amount of the subjects' productive vocabulary size did not demonstrate the problems of subjects' speaking and writing (2324.32 word families), there were still many individual subjects, one of three, who would have problems with speaking and writing.

In terms of the receptive and productive vocabulary knowledge of the subjects from engineering, it was found that they acquired the average receptive vocabulary size of 5197.37 word families that fell below the required vocabulary size in the skills of listening and reading which required vocabulary knowledge of 6000 and 8000 word families, respectively. There were only 23 percent of the subjects who had a receptive vocabulary size greater than 6000 word families and only 4 percent had the vocabulary more than 8000 word families. The average productive vocabulary knowledge of the engineering subjects was 1135.42 word families. It was lower than the adequate number of 2000 word families required for effective speaking and writing. Only 12 percent of the subjects had a productive vocabulary size higher than 2000 word families.

It may be concluded that as many as 77 percents of the subjects from engineering would have problems with listening, 96 percent with reading, and 88 percent with speaking and writing due to a low level of their receptive and productive word knowledge.

Last, the average receptive vocabulary of the subjects from the nursing field was 5081.82 word families which were less than the 6000 and 8000 word families necessary for the English skills of listening and reading. Out of all subjects in this field, only 23 percent of them had a receptive vocabulary knowledge of above 6000 word families and no subjects had a receptive vocabulary size of more than 8000 word families. According to the average productive vocabulary size, the findings showed that their average vocabulary size was 947.47 word families, which was lower than the adequate size for speaking and writing at 2000 word families. Of all subjects in this field, no

subject had a productive vocabulary size of more than 2000 word families.

Based on these results, two third of the subjects in a nursing field would have trouble with listening. It is interesting to note that all subjects in this field would face problems with the skills of reading, speaking and writing.

Research Question 3: What factors affect the students' vocabulary knowledge?

The interview

Eight high vocabulary subjects on both receptive and productive vocabulary size tests and another 8 low vocabulary subjects to the two types of vocabulary tests were chosen to take an interview about their history of English language learning and their attitudes towards The English language.

The history of English learning of the subjects interviewed revealed certain interesting points. Four out of 8 high vocabulary subjects studied in an English high school program where all courses were taught in English by foreign teachers except for the Thai courses. The other 4 high vocabulary subjects studied in a normal Thai program, one of which attended Christian schools, which focus on learning English. Additionally, 5 high vocabulary subjects took extra English classes with English native teachers; one had the opportunity to attend a summer course abroad every year. In contrast, all 8 low vocabulary subjects studied in a regular Thai high school program; only one took extra English classes.

In terms of attitudes towards English, the high vocabulary subjects tended to have positive attitudes towards English while the low vocabulary subjects had negative attitudes. Six out of 8 high vocabulary subjects liked English; the other 2 were neutral. However, only 1 out of 8 low vocabulary subjects liked English; 2 subjects were indifferent, and the other 5 did not like English at all.

Conclusion and discussion

The results of this present research illustrated the vocabulary knowledge of Prince of Songkla University students who will graduate and enter the workforce in 2015. The vocabulary knowledge: 1) receptive and 2) productive vocabulary of Prince of Songkla University subjects in the six fields of a study showed that their vocabulary knowledge was below the sufficient vocabulary size, reflecting the fact that they were not yet ready for effective communication in different language skills.

Even among the subjects in medicine and dentistry who had the highest and the second highest vocabulary size of all fields, 17 percent of medicine and 27 percent of dentistry had vocabulary knowledge below the needed vocabulary size for effective listening, 71 percent of medicine and 83 percent of dentistry below the adequate vocabulary for reading, and 11 percent of medicine and 34 percent of dentistry below the sufficient vocabulary for speaking and writing. The subjects in nursing had the lowest receptive and productive vocabulary size among all fields. No subjects from this field had the adequate amount of vocabulary for effective reading, speaking, and writing; only 23 percent of them had the sufficient vocabulary for effective listening. The information from the interview revealed that the students' attitudes towards English language and their exposure to the language may influence their vocabulary level.

The findings that Prince of Songkla University students had the receptive and productive vocabulary knowledge below the sufficient vocabulary size for effective language

use are in line with many scholars who found that L2 learners' receptive and productive vocabulary size was below 6000 and 2000 word families which are considered the needed vocabulary size for receptive and productive vocabulary skills, respectively. For example, Nurweni and Read (1999) investigated the receptive vocabulary knowledge of Indonesian university students and found that they had the average vocabulary size of 1226 word families. Laufer (1998) found that Israeli high school graduates acquired a receptive vocabulary size of 3500 word families. Zhiying (2005) revealed that Chinese and Thai university students had a receptive vocabulary size of 3348 and 3021 word families, respectively; their productive vocabulary size was 1456 and 1118 word families, respectively.

This study revealed some factors that are likely to affect the amount of the subjects' vocabulary knowledge, both receptive and productive vocabulary. Information obtained from interviews with 8 high vocabulary subjects and 8 low vocabulary subjects showed that the factors likely to affect the vocabulary ability of the subjects were their exposure to English language and their attitudes towards English language.

The high vocabulary subjects had more opportunities to study abroad, study in English programs, and had extra English classes with foreign teachers, so they had more chances to practice English listening, speaking, reading, and writing. The use of such skills would provide the opportunity to use both receptive and productive vocabulary knowledge better. This is another way to incidental vocabulary learning which is recognized by many researchers as the most effective way to develop vocabulary knowledge (Nagy et al., 1985; Hucking and Coady, 1999; Ahmad, 2011).

The analysis suggests that attitudes towards English language played an important role in the subjects' success in learning vocabulary. The interview revealed that the high vocabulary subjects tended to have positive attitudes towards English language while the low vocabulary subjects tended to have negative attitudes towards the language. There have been several studies that examined the influence of learners' attitudes towards learning the target language, including research by Gardner and Lambert (1972) and Ellis (1994) which notes that positive attitudes towards learning a second language affect the development of learners' language skills and could push the learners to succeed in language learning. Nagative attitudes towards learning the language are a barrier to the development of learners' English language skills to the expected level.

Implications

The upcoming ASEAN Economic Community (AEC) in 2015 will pave the way for the free flow of skilled labor among ASEAN regions, especially in eight specific professions comprising engineering, nursing, medicine, dentistry, architecture, hotel and tourism, surveying, and accounting. In ASEAN, English is known as a medium language so English proficiency could be a decisive factor for **graduates'** job opportunities. To obtain the benefits from **the** opening of a free labor market, Thai people are required to have good English skills. Vocabulary knowledge is one of the important aspects in acquiring the effective level of communication (Dubin and Olshtain, 1986).

The results of this study showed that the subjects' vocabulary size was relatively limited. Most subjects had a vocabulary size below the required levels of effective language use. Waring

and Nation (1997) and McCarthy (1990) assert that limited vocabulary repertoires are a barrier to learners' success in using English skills: listening, speaking, reading, and writing.

These findings about the university students' vocabulary size will be beneficial for all parties involved: the university, the students' faculties, and the faculty responsible for teaching English. They should be aware of the students' problems; more efforts should be put to develop students' vocabulary knowledge to an adequate level of communication. Most importantly, the students themselves should be aware of the limitations of their own vocabulary knowledge and try every possible way to improve their vocabulary knowledge to a sufficient level for effective language use.

As demonstrated above, the levels of exposure to English language and attitudes towards the language have influenced the subjects' vocabulary knowledge size. Therefore, finding ways to increase the learners' English exposure and develop their positive attitudes towards the language could be a way for language teachers to enhance their students' vocabulary size.

Another effective tool to enlarge learners' vocabulary knowledge is using the vocabulary learning strategies. According to Nirattisai and Chiramanee's study (2014), 17 vocabulary learning strategies contributed significantly to vocabulary size. These strategies included remembering the word from its "root", "prefix", and "suffix", analyzing the meanings of words from textual context, analyzing affixes and roots to guess the meanings of words, learning words through verbal repetition, and using English printed matter. Thus, in order to expand learners' word knowledge to an adequate size, these effective vocabulary learning strategies should be taught and learners should be encouraged to apply these strategies in their vocabulary learning.

Further Studies

This research aimed to quantify the vocabulary knowledge of Prince of Songkla University students in 6 out of 8 professional groups under the AEC agreements. For future study, the research should be done with students in all 8 professional groups who would be affected by the upcoming AEC and the studies should cover students at all universities which offer these fields of study. Data obtained can then be compared and used to further improve new generation of Thai graduates' vocabulary knowledge which will, in turn, lead to effective communication.

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