Use of Dictionaries and Online Tools for Reading by Thai EFL Learners in a Naturalistic Setting

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Abstract: Dictionaries and online tools are regarded as important tools for finding out the meanings of unknown words or checking the usage of interesting words. This study investigated students' use of dictionaries and online tools in a natural setting by identifying the type of words they look up in their dictionaries and the types of dictionaries they use for the look-up. Fourteen learners from a Thai public university participated as the subjects by filling in a task record form which included the names of the dictionaries they were using, look-up words, meanings selected for the words, and their parts of speech. The look-up words were analyzed to find out the frequencies of words, parts of speech, and meanings by checking with an advanced learner dictionary. The findings show that the subjects mainly selected words that were nouns, verbs, and adjectives. They tended to choose "high frequency" for the lookups. For their convenience, subjects used either an online translation tool, 'Google Translate', or bilingual dictionaries through mobile devices. The results may help us understand EFL dictionary users' behaviors in using dictionaries and provide interesting implications for language teachers.

Keywords: DICTIONARY USE, DICTIONARY LOOKUPS, THAI EFL LEARNERS, GOOGLE TRANSLATE, DICTIONARY RECORD FORM, ONLINE DICTIONARIES

Opsomming: Thaise EVT-leerders se gebruik van woordeboeke en aanlyn hulpmiddels vir lees in 'n natuurlike omgewing. Woordeboeke en aanlyn hulpmiddels word as belangrike werktuie beskou om die betekenisse van onbekende woorde te bepaal of om die gebruik van interessante woorde na te gaan. In hierdie studie is studente se gebruik van woordeboeke en aanlyn hulpmiddels in 'n natuurlike omgewing bestudeer deur die tipe woorde wat deur hulle nageslaan word in hul woordeboeke asook die tipe woordeboeke wat hulle vir die naslaanproses gebruik, te identifiseer. Veertien leerders van 'n Thaise staatsuniversiteit het as proefpersone deelgeneem deur 'n taakkontrolevorm te voltooi wat die name van die woordeboeke wat hulle gebruik het, die woorde wat nageslaan is, die betekenisse wat vir die woorde geselekteer is, en hul woordsoorte, ingesluit het. Die woorde wat nageslaan is, is geanaliseer om die frekwensies van woorde, hul woordsoorte, en betekenisse te bepaal deur 'n gevorderde aanleerderswoordeboek te raadpleeg. Die bevindings dui daarop dat die proefpersone hoofsaaklik substantiewe, werkwoorde en adjektiewe geselekteer het. Hulle was geneig om voorkeur aan "hoëfrekwensie" in

die naslaanproses te verleen. Geriefshalwe het die proefpersone óf 'n aanlyn vertalingshulpmiddel, 'Google Translate', óf tweetalige woordeboeke met behulp van mobiele toestelle gebruik. Die resultate mag ons dalk help om EVT-gebuikers se gedrag in die gebruik van woordeboeke te verstaan en lewer interessante implikasies vir taalonderwysers.

Sleutelwoorde: WOORDEBOEKGEBRUIK, WOORDEBOEKNASLAANPOGINGS, THAI EVT-LEERDERS, GOOGLE TRANSLATE, WOORDEBOEKKONTROLEVORM, AANLYN WOORDEBOEKE

Introduction

A dictionary is an essential tool when learning a foreign language. Learners consult their dictionaries for many purposes for different tasks. In a reading task, learners are likely to consult their dictionaries to find out the meaning of unknown or unfamiliar words. The main focus for dictionary use for reading as suggested by Schofield (1982) is to find out the specific meaning that is relevant to the context of the unfamiliar word or phrase, rather than to find out its spelling or grammatical characteristics. Learners can find the information about the meaning by using either a monolingual learner's dictionary or a bilingual (L2>L1) dictionary.

In recent years, it has been shown that new technology is being integrated into our lives at a great rate. The widespread use of mobile devices, especially computers and smartphones, significantly changes the ways of learning in many contexts, including language learning (Kukulska-Hulme 2009). This also changes the ways students consult their dictionaries, and internet or online dictionaries have gained popularity among EFL students (Dashtestani 2015). A number of studies (e.g., Fallianda 2020, Alhatmi 2019, Metruk 2017, Aslan 2016, Anongchanya and Boonmoh 2015, Ding 2015) have shown a growing number of online dictionary users in many countries around the world.

In Thailand, the number of smartphone users have increased rapidly. Studies into dictionary use (e.g. Boonmoh 2018, Chotkarnchanawat et al. 2017, Inpin 2016) show that students reported using dictionaries and online dictionaries both in classrooms and at home. Although online dictionaries are common in Thailand, they tend to be ignored by language teachers. Few studies that investigated dictionaries and online tools were conducted in classroom settings where their look up behavior may be different from natural settings.

Dictionary use is a private activity and the learners are often inclined to be secretive (Nesi and Boonmoh 2009), especially when they are of low L2 proficiency and when they feel that their teachers disapprove of the types of dictionaries they use. The choice of dictionary type also depends on individual learners. A number of previous studies (Liang and Xu 2018, Ding 2015, Dziemianko 2010) into dictionary use have been conducted in controlled experimental settings i.e., controlling the use of a specific type of dictionaries, the type of reading

passages, the controlled setting of the experiment and the time spent. However, the findings may not be applicable to a real context where learners can choose which texts to read and to freely consult any dictionaries. This study, therefore, aims to find out which dictionaries students use and what type of words students look up in dictionaries when they are reading passages in their own free time.

Literature Review: Uncovering dictionary use

There are different methods to investigate dictionary use and dictionary look-up behavior. The following are a few but detailed reviews of previous studies with special reference to the methods used, which provide justification for the choice of this study's methodology.

One of the most common methods to research dictionary use is perhaps questionnaire research. Many studies in dictionary research (Fallianda 2020, Hojatpanah and Dashtestani 2020, Alhatmi 2019, Abbasi et al. 2019, Chotkarnchanawat et al. 2017, Aslan 2016, Boonmoh 2010) have employed this method. Although questionnaire survey research can be used as a way of obtaining results from a great number of respondents and has the potential for generating and testing a hypothesis because the large number of respondents can also mean better representation of the whole population, one basic problem associated with this type of survey as discussed by Nesi (2000) is the accuracy of responses. It is difficult for subjects to give correct information for questions which require them to recall their previous dictionary use behaviors. Some questions may require a capacity to recall, retrospect and comprehend beyond the abilities of the average dictionary user. Crystal (1986: 78) points out that retrospective questionnaire items place high demands on subjects' memories. He even challenges if anyone could "*confidently write down when they last used a dictionary, why they used it, and how often they consult one*". For this reason, it may not be a good idea to use questionnaires to investigate dictionary use behavior.

Interviews can be used to elicit opinions, and interactive settings are another step towards gathering more direct evidence of dictionary look-up behavior. Previous research which employs interviews together with other research instruments includes Hojatpanah and Dashtestani 2020, Baskin and Mumcu 2018, and Dashtestani 2013). The interview questions can be structured but can also be flexible in the sense that interviewers may ask further questions related to the interviewees' replies. It has been suggested, however, (e.g., Gorden 1980) that the more structured the interview, the more interviewees will feel like '*subjects*' rather than '*informants*'. Making the interviewees feel like '*subjects*' might affect how they supply information as they might try to please researchers by providing information that they think we want to hear. Another basic problem when using an interview as a research instrument is similar to a problem using a questionnaire. The responses may not be accurate. Hatherall

(1984: 184) questioned the success of questionnaire data as a means of recording subjects' behavioral acts: "*Are subjects here saying what they do, or what they think they do, or what they think they ought to do, or indeed a mixture of all three?*

Observation can be an effective way to describe dictionary use behavior as Hatherall (1984) recommends that watching dictionary users in action is "*the only reliable method of collecting data on dictionary user behavior*". It is, however, very difficult for teachers or researchers to see what is happening during a student's dictionary consultation as the dictionary consultation is a private activity. A less obstructive method to observe how dictionaries are used can be done by using 'log file' on computers. '*Log file*' is a file that lists actions that have occurred (through keystroke logging). With log file analysis tools, it is possible to record all information about the use of a computer: what users key in, what they delete, what words in a dictionary they look up, etc. Studies that have employed log files include, for example, Koplenig et al. (2014), Chen (2011), Laufer and Levitzky-Aviad (2006), and Hulstijn and Trompetter (1998). Some limitations of using 'log file' as a research instrument listed by Lew (2015) are that "*log files will rarely tell us what the context of dictionary use is: what activity the user is involved in, what particular problem they are trying to solve, and the level of success and satisfaction achieved in the consultation*". Since this study aims at looking at dictionary use in a naturalistic setting, learners will not be restricted to using only dictionaries on computers but may also access dictionaries on their own devices and/or in printed forms.

Another method of investigating dictionary use involves lookup record forms. Some studies that have employed this method are Atkins and Varantola (1998), Diab and Hamdan (1999), Al-Ajmi (2002), and Frankenberg-Garcia (2005). These studies were conducted in a natural setting, reducing the likelihood of producing distorted data. Using dictionary record form, each subject could do the work at their own pace and they could use their dictionaries to solve their reading problems without being observed. However, asking students to record words they look up may not be appropriate for research into how dictionaries are really used. This is because the focus of the study (by using lookup record forms) would be on the final decision of the students rather than on the entire lookup process.

More studies using more naturalistic approach are needed to explore how learners use dictionaries in real situations, particularly in language learning contexts such as reading, writing and translation (Liang and Xu 2018), as dictionary consultation is a private matter and there is no way of discovering what people actually do when they use a dictionary without interfering with their natural behavior. Using a questionnaire would require too much memory recall from the students. Using a log file can help reveal this, but it is limited to observing dictionary use on mobile devices. When learners access their dictionaries or reference tools in printed format, log files cannot be used. Observation can look at how students use dictionaries in a natural setting but the fact that the students are being observed may affect their dictionary use behaviors.

Asking the students to verbalize would inevitably disrupt the subjects' working processes. Using a dictionary record form can reveal only the final production of dictionary use i.e., what words they looked up for their reading. Taking all the type of research methods into consideration, the most appropriate research method for this study is, therefore, the use of a dictionary record form since the purpose of this study is purely to investigate the type of dictionaries and the type of words the students look up in dictionaries when they are reading passages at a time and place of their choice, and they can read and look up words at their own speed without any disruption.

Purposes of the study

The purposes of this study are to find out the following.

(a)   What types of words were selected?
(b)   From the selected words, what frequency level do they belong to?
(c)   What types of dictionaries did students use?

Methodology

Participants

The participants of this study were 14 learners who enrolled in an English course entitled "*Reading and Vocabulary Level 2*" in the academic year 2020. These 14 learners were support staff members at a Thai public university in Bangkok, Thailand. Under the university Training Roadmap, six English courses were available for the staff: *Reading and Vocabulary Level 1 and Level 2*, *Listening and Speaking Level 1 and Level 2*, and *Writing and Grammar Level 1 and Level 2*. The 14 participants were from different departments/divisions of the university. Their ages ranged from 34 years old to 53 years old. Of these, 12 had at least a bachelor's degree and the remaining two participants had vocational diplomas. Their English language proficiency was considered low. These participants were chosen for two reasons. First, they enrolled in and attended the course voluntarily. Second, the content of the course was about strategies in learning vocabulary and strategies in reading. The course aimed to develop vocabulary knowledge through reading and also involved reading strategies, dealing with unknown words, and using dictionaries.

Data collection

The reading text

As a part of the course requirement, the students needed to complete a sum-

mary task where they had to select a news article in English, read it thoroughly at their own pace and at a time and place of their choice, and write a summary in Thai. The news articles were chosen because they could lead students to many benefits such as increasing their awareness and motivation and encouraging them to bring a sense of reality and authenticity to the classroom (Rao 2019).

Ten news articles were taken and adapted from a BBC website and students were given choices to choose one of these ten articles which included a variety of news such as business, education, entertainment, environment, science and technology, and national and international issues:

— Air pollution: Thailand schools still closed due to 'unhealthy' smog levels (247 words)
— Could your firm move to a four-day week? (389 words)
— EU-Swiss share trading row: What does it mean? (325 words)
— Fukushima nuclear disaster: Abandoned town allows first residents home (215 words)
— Jack Ma defends the 'blessing' of a 12-hour working day (338 words)
— Salmon farming 'pays £100m in British taxes' (392 words)
— Starbucks to pay staff tuition fees (371 words)
— Tesla to raise prices and keep more stores open (394 words)
— TikTok app banned by US Army on work mobile phones (354 words)
— Where we are with Brexit — in 300 words (355 words)

Dictionaries and online tools

At the beginning of the course, the students were introduced to different types of dictionaries and online tools that are useful for reading. For the summary task, the students were instructed to use any dictionary of their choice i.e., bilingual or learner's dictionaries, online dictionaries from computers, or dictionaries or applications on mobile devices.

Task record form

After the students chose the news articles, they were given one week to complete the summary task. They were instructed to do this task at their own pace and at a time and place of their choice. The students had to submit two documents: the summary, and the task record form which included information about (1) their reason for choosing the news article, (2) looked-up words, their meanings, and word classes, and (3) the type and the specific name of the dictionary used. (See Appendix A for the task record form.)

Data analysis

The researcher studied the elicited data and tabulated them accordingly i.e., looked-up words, their word classes, and their word frequency were put in a spreadsheet. All the looked-up words were analyzed to see whether the words fell in High, Mid, or Low-frequency words based on Longman Communication 9000 (LC9000) in Longman Dictionary of Contemporary English Online 6th edition (LDOCE), which is based on 390 million words in the Longman Corpus Network. This dictionary was chosen because of two reasons. First, it contains features typically found in major advanced learners' dictionaries. Second, this dictionary is well-known in Thailand.

LDOCE contains words appearing in the Academic Word List (AWL). These are important words to know when reading and writing academic assignments. It also provides the Longman 9000 keywords (LC9000) which are the most important 9,000 words to learn in English. The words can be classified into three levels: High frequency words, Mid frequency words, and Low frequency words. The three red dots indicate the top 3000 words, the two red dots indicate the next most important words, and the one red dot indicates the less frequent yet important next 3000 words.

However, in this dictionary there are some other words which do not belong to any of the 3 categories. These words occur less frequently than others, but they are still important and deserve an entry in the dictionary.

From the raw data, the reasons for choosing the news articles were noted, and the total number of looked-up words was counted and categorized into two themes: word classes and word frequency. The names of dictionaries were counted and classified. (See Appendix B for full details of all lookups.) The data from students' written summaries were not used in the analysis.

Findings

It can be seen from Table 1 that only four (out of ten) news articles were chosen by the students. P1 to P4 chose to read the article about air pollution in Thailand and P5 to P8 chose to read about a nuclear disaster in Fukushima. The next three students (P9 to P11) chose to read about an American multinational chain of coffeehouses called Starbucks and the remaining three students (P12 to P14) chose to read about a video-sharing social networking service called TikTok. When asked about the reasons, common themes emerging from this were having some background knowledge of the topic or having familiarity with the topic, having interest in the topic, and the short length of the news article.

Table 1:   News article read by students, their reasons for choosing it and number of dictionary lookups

Students	News Article Read	Reasons	Number of Lookups
P1	Air pollution: Thailand schools still closed due to 'unhealthy' smog levels	*I think it will not be too difficult.*	15
P2		*It's about Thailand.*	11
P3		*I have some background knowledge.*	8
P4		*Familiar content so it will be easy to understand.*	13
P5	Fukushima nuclear disaster: Abandoned town allows first residents home	*I have some background knowledge.*	15
P6		*It is the shortest. It seemed to be the easiest.*	11
P7		*It's short.*	9
P8		*I want to keep updated about it.*	10
P9	Starbucks to pay staff tuition fees	*I like Starbucks Coffee.*	10
P10		*I know about Starbucks.*	11
P11		*Interesting*	10
P12	TikTok app banned by US Army on work mobile phones	*My daughter uses it and I want to know why it is banned.*	17
P13		*I heard about it and want to know more.*	12
P14		*My children use it.*	13
Total number of lookups 95 (Noun) + 44 (Verb) + 22 (Adjective) + 4 (Adverb)			165

In terms of dictionary lookups, the total number of consultations completed by all the 14 subjects were 165. The number of lookups completed by each subject ranged from 8 to 17. The average lookups were 12. Of these 165, 95 (57.6%) lookups were words classified by LDOCE as nouns, 44 (26.7%) lookups were classified as verbs, and 22 (13.3%) lookups were classified as adjectives. Adverbs were among the least common words that the subjects looked up in the dictionaries. These only accounted for 4 (2.4%) lookups which were "*currently, recently, increasingly"*, and *"partially*". It should be noted that the total number of lookups does not equate the total number of words. This is because some words were looked up by several students. For example, the word 'plant' was looked up by 4 students, the word 'Chernobyl' was looked up by 3 students, the word 'decontamination' was looked up by 2 students. There were altogether 9 lookups, but these lookups are counted as three words. (See Appendix B for full details of all lookups and words.)

Since the subjects chose the article of their choice to read, there are certainly words that they did not know the meaning of or words that could help them with their comprehension. The words that they were likely to look up might be content words and specific words that they need to know about the topic being read. For example, "*EU, Arizona, Brexit, Pret a Manger*" were looked up by the subjects who read the article "*Starbucks to pay staff tuition fees*". It is obvious that most of the lookups were content words i.e., nouns, verbs, and adjectives, because these words carry meanings and must be included in a sentence for it to make sense, while the others were function words which only add proper grammatical structure and flow to the sentence. This might explain why the subjects looked up more content words and specific words than function words.

Table 2:   Lookups classified by frequencies

Frequency		Word class	Lookups	Total lookup
Longman Communication 9000	High frequency	N.	29	52 (31.5%)
		V.	16	
		Adj.	5	
		Adv.	2	
	Mid frequency	N.	26	55 (33.3%)
		V.	20	
		Adj.	8	
		Adv.	1	
	Low frequency	N.	19	23 (14%)
		V.	2	
		Adj.	1	
		Adv.	1	
Unidentified		N.	21	35 (21.2%)
		V.	6	
		Adj.	8	

From Table 2, upon examining the subjects' frequency of lookup words, it can be seen almost 80% of all the lookups (130 lookups) were words that are listed in the LC9000. Of these, 52 lookups (31.5%) belong to the High-frequency category, and 55 lookups (33.3%) belong to the Mid-frequency category, and 23 lookups (14%) belong to the Low-frequency category.

Only 35 lookups were classified as unidentified because the frequency marks are not shown in the Longman Dictionary of Contemporary English. These are, for example, "*Chernobyl, Arkansas, Arizona, Brexit, EU, Pret A Manger, Newsroom, tsunami, haze, incense*" for nouns, "*Hosing, expediting, lip-synching*" for verbs, and "*grainier, toxic, quirky*" for adjectives.

Table 3:   Examples of Lookups classified by Longman Communication 9000

Participants	Titles of news articles	Lookups listed in LC9000	Unidentified	
				Proper noun
P1 P2 P3 P4	Air pollution: Thailand schools still closed due to 'unhealthy' smog levels	effect, cases, lung, smog, exhaust, blame, reduce, tackle, tiny, unhealthy, harmful	Haze, incense, hosing, grainier, toxic	—
P5 P6 P7 P8	Fukushima nuclear disaster: Abandoned town allows first residents home	plant, inhabitants, recovery, radiation, infrastructure, accuse, flee, vast	tsunami, expediting	Chernobyl
P9 P10 P11	Starbucks to pay staff tuition fees	employee, tuition, incentive, undergraduate, enroll, offer, obtain, financial, available	—	Brexit, EU, Pret A Manger, Arizona
P12 P13 P14	TikTok app banned by US Army on work mobile phones	cyber threat, policies, privacy, authorities, scrutiny, hire, restrict, issue, wary	lip-synching, quirky	Arkansas

Table 3 shows some words that were searched by the students in order to complete the summary task. It is clear most searched words are content words and are listed in the LC9000 (Also see Appendix B). These searched words are important for the students as they help the students to comprehend the news articles effectively.

For example, Participant 10 looked up these 11 words: "*incentive, initial, expand, obtain, Brexit, Pret A Manger, firm, offer, undergraduate, financial, reduce*". These are key words that help Participant 10 understand the main idea of the news article 'Starbucks Coffee <u>offers</u> an <u>incentive</u> to its staff in UK who want to <u>obtain</u> an <u>undergraduate</u> degree by giving <u>financial</u> support to them'.

Taking the titles of articles into consideration, it is obvious that many of the lookups that are classified as unidentified are proper nouns or words that are specially related to the specific topics the participants chose to read. For example, the words "*haze, incense, hosing, and toxic*" were searched by students as these words are related to the 'toxic <u>haze</u> that can be reduced by <u>hosing</u> down the streets and not burning <u>incense</u>'. The proper nouns "*EU, Arizona, Brexit, Pret a Manger*" were looked up as it specifically discussed about 'recruitment problems Pret a Manger may encounter after Brexit from the EU'

Although this study did not take the success of dictionary consultation and the correctness and overall quality of the written summaries into account, it should be noted that some subjects misunderstood the news articles. Part of

this misunderstanding was due to their dictionary lookups. For example, Participant 6 looked up the word 'plant' from *Google Translate* and wrote the meaning "ปลูก" /to plant/ in the dictionary record sheet. His written summary talks about planting trees nearby Fukushima power plant.

Table 4:   Dictionaries and online tools consulted by students

Dictionaries and Online Tools	Participants who used this type														Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Google Translate	/	/	/	/	/	/	/	/	/	/	/	/	/	/	14
www.google.com										/	/	/			3
Longdo Dict					/										1
Sanook Dict								/							1
Line Dict						/									1
LDOCE				/											1
Se-Ed's Modern English-Thai dictionary	/		/												2
Total	2	1	2	1	2	1	2	1	2	2	2	2	1	1	23

Table 4 shows the proportion of dictionaries and online tools that the 14 students consulted while reading the news articles. *Google Translate* is by far the most popular online translation tool that they used for the summary task. All 14 students used *Google Translate* from their mobile devices. It can be seen that not everyone uses only one dictionary. All 14 students used *Google Translate* as a base dictionary and some students used other dictionaries.

Three students used websites such as www.google.com to search for unknown words. For example, in the task record form, Participant 10 wrote that he looked up the word "Pret A Manger" from *Google Translate*, but the translation was "แกล้งทำเป็นรางหญ้า" /pretend to be a manger/. He then looked up "Pret A Manger" from www.google.com. and later understood that it is a name of a well-known sandwich company. Interestingly, Participant 12 reported in the task record form about searching for the words "*military, army, navy, Arkansas*" from *Google Images*.

Three students used online English–Thai dictionaries from their mobile devices. Online English–English dictionaries were the least popular as can be seen that only one participant reported using Longman Dictionary of Contemporary English Online. This may be because LDOCE was used as an example of a learner's dictionary introduced to the students at the beginning of the course. It is also interesting to note that taking the mode of dictionaries into consideration, online-based dictionaries outnumber paper-based dictionaries by 18 to 2. Only two students used an English–Thai dictionary in book format for this summary task.

Discussion and Conclusion

This study reveals insights into how the students selected a news article of their own choice to read at their own time, the type of words they looked up from their dictionaries and online tools as well as their choice of those tools used to complete the summary task in a naturalistic setting.

The findings of this study showed that when choice and adequate time were given, students chose to read the news articles based on their familiarity or the background knowledge they had on the topic, their interests, and the perceived difficulty of the text. This finding is obvious, but it can provide some implications for research design of receptive use of dictionary use research. In order to better understand students' dictionary use behavior, it is important that they can choose reading texts according to their own interests or they can have some degree of freedom to choose reading texts. They would be more motivated to engage with the text (Butcher and Kintsch 2003), and the more background knowledge they have on the text, the more likely they will be able to make sense of what is being read (Pardo 2004).

In the analysis of word types and their frequency, it is found that the students looked up content words (noun, verb, adjective: 97.6%) much more than function words (adverbs: 2.4%). This finding is not surprising because in any given text it is typical that the number of content words is higher than function words. The fact that the subjects looked up fewer adverbs might be because there were fewer of these than other kinds of content word in the text. On the other hand, content words are words that are related to both meaning and comprehension, and acquisition of content words is essential for successful second language use. Content words are usually polysemous (Crossley et al. 2010), they carry multiple meanings which can cause problems for students in meaning comprehension. This may explain why content words were looked up much more than function words. This finding is consistent with that of Liang and Xu (2018) who reported Chinese learners indicated their tendency to look up content words more than function words.

The study also showed that the students consulted high-frequency words most often as can be seen that 80% (130 out of 165) of all lookups are listed in the LC9000. This finding corresponds to that of Liang and Xu (2018) and Koplenig et al. (2014). The high proportion of high-frequency words that were looked up may reflect the fact that students' vocabulary was limited and they relied heavily on dictionaries and online tools to comprehend their meaning.

In terms of the students' choice of dictionaries and online tools, analysis of the data indicated that the students used bilingual dictionaries more frequently than monolingual ones as well as used online dictionaries more than paper-based dictionaries. This accords with a survey finding conducted by Fallianda (2020) that pre-intermediate and intermediate students use bilingual dictionaries more often than monolingual dictionaries. The finding of this study is also consistent with those in Tong (2019), Małgorzata (2016), and Dashtestani (2013) in

that bilingual and online dictionaries were the most popular among the students.

This study found that an overwhelming number of students reported that they used *Google Translate* to do the summary task. This finding is similar to Małgorzata's investigation (2016) that the students highlighted their preference for online dictionaries and online resources rather than traditional paper dictionaries. However, it is interesting to note that *'Google Translate'* is not a dictionary. It is an online translating tool, but it has gained much popularity from many users from which can be inferred that the students found it convenient to find the meaning of words. Even though teachers encourage students to use learner's dictionaries (Boonmoh 2010), the students seemed to prefer to use other online dictionaries and tools when they have access to their own mobile devices.

Interestingly, the finding of the current study is contrary to that of Ding (2015) and Diab and Hamdam (1990) who found that monolingual dictionaries were preferred by their students. This may be explained by the fact that the students of these two studies were English major students who presumably were advanced learners of English, and they used dictionaries in their translation classes. Another explanation is related purpose of dictionary use. Using a dictionary for translation task and using a dictionary for a summary may affect the choice of dictionary use. Since the students in the current study were lower intermediate learners of English and they preferred bilingual dictionaries, this may suggest that they are not confident enough about their English and they might feel more comfortable using bilingual dictionaries than English–English dictionaries as they could understand the meanings of the target words right away. This can be further supported by Corrius and Pujol (2010) in that bilingual dictionaries generate confidence among users.

Conclusion

This study investigated the use of dictionaries and online tools by students in a naturalistic setting by identifying students' justification when selecting a news article to read in their own time and exploring the frequency and type of words looked up in dictionaries and online tools by the students. It also identified dictionaries and online tools used by the students.

Based on the findings, it can be proposed that when teaching students in a reading class, teachers should select reading passages that are authentic and relevant to students' background knowledge. Students should be allowed an opportunity to choose to read a text of their interest and at their own time. As acquisition of content words is essential for successful second language use, teachers may consider providing explicit training in dictionary use. Teacher may introduce the students to different learners' dictionaries and provide information on the criteria according to which dictionaries determine the priority in vocabulary and word frequency (Metruk 2017). For example, the

LC9000 features in LDOCE can help students be well-informed in vocabulary learning and use. This will also help students know which words are assigned priority. Since words in high- and mid-frequency categories were looked up the most, this may suggest students' limited vocabulary knowledge. Therefore, teachers should not ignore vocabulary teaching and reading strategies so that the students can increase their reading proficiency.

One last important result emerging from this study is the frequent use of 'Google Translate'. Since this study was conducted in a natural setting and no particular dictionaries or online tools were imposed on the students, it is clear that the use of 'Google Translate' will become a fact of life for EFL learners in Thailand and other countries. This increase in "Google Translate' use will eventually affect classroom environments. The presence of "Google Translate" will continue, as Stirling (2005: 64) suggested "they seem to be here to stay, just as calculators, once welcomed by students and rejected by teachers, have stayed."

The decision whether to ignore "Google Translate" use in classroom or to help students make full use of "Google Translate" will depend on the teachers. Language teachers should explore this thoroughly in terms of advantages and disadvantages so that they can be in a position to train students to use "Google Translate" or to integrate Google Translate along with other online dictionaries effectively. For example, when using "Google Translate" to find the meaning of the words, the teachers should make the students beware that when using a dictionary or online tool to find the meaning of the words, they need to select the appropriate entries for the context so that they can better understand the text. Teacher may suggest alternative ways to look for meanings of the unknown words such as using *Google Images*.

This study provides insight into dictionaries and online tools use in natural setting. However, it has some limitations. The number of students in the study is not high. The meanings that the students supplied in the task record form after look-up were not taken into account although the finding is based on the task record form. Although the students were allowed to choose one of the ten news articles, the students were not entirely free to choose what they wanted to read. This might have provided a better picture of how the students use dictionaries and online tools to meet their reading needs. To improve these, future studies with a larger population, with free choice of text read and with mixed research methods should be conducted. Studies into success in dictionary consultation taking into account task record form should be conducted.

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Appendix A: Dictionary Record form

1.   Which news article did you choose to read?

_____
_____
_____

2.   Why did you choose this article?

_____
_____
_____

3.   What are the most interesting words that you learned? What words did you look up?

Words	Part of speech	Meaning(s)

4.   Please write down the names of dictionaries and online tools that you used in this task.

(1)   …………………………………………………………………..
(2)   …………………………………………………………………..
(3)   …………………………………………………………………..

_____

Appendix B: Details of Lookups and words

NOUN								
No.	Words	Classified by LC9000	Searched by	Frequency	No.	Words	Classified by LC9000	Searched by	Frequency
1	plant	High	P5 P6 P7 P8	4	31	lungs	Medium	P1	1
2	army	High	P12 P14	2	32	navy	Medium	P12	1
3	authorities	High	P5 P7	2	33	personnel	Medium	P14	1
4	concern	High	P7 P13	2	34	privacy	Medium	P14	1
5	military	High	P12 P13	2	35	residents	Medium	P6	1
6	policies	High	P12 P13	2	36	Spokeswoman	Medium	P11	1
7	quality	High	P2 P4	2	37	strain	Medium	P11	1
8	threat	High	P12 P13	2	38	tuition	Medium	P9	1
9	attempt	High	P8	1	39	undergraduate	Medium	P10	1
10	billion	High	P14	1	40	infrastructure	Low	P5 P6 P7 P8	4
11	cases	High	P4	1	41	autonomy	Low	P12 P13 P14	3
12	disaster	High	P8	1	42	exhaust	Low	P1 P2 P4	3
13	effect	High	P4	1	43	scrutiny	Low	P12 P13 P14	3
14	election	High	P14	1	44	smog	Low	P1 P3 P4	3
15	fees	High	P9	1	45	default	Low	P12	1
16	firm	High	P10	1	46	particles	Low	P1	1
17	progress	High	P5	1	47	radiation	Low	P7	1
18	scheme	High	P9	1	48	Brexit	unidentified	P9 P10 P11	3
19	tax	High	P11	1	49	Chernobyl	unidentified	P5 P6 P8	3
20	capabilities	Medium	P12 P14	2	50	haze	unidentified	P1 P2 P3	3
21	incentive	Medium	P9 P10	2	51	decontamination	unidentified	P5 P8	2
22	inhabitants	Medium	P5 P6	2	52	incense	unidentified	P1 P4	2
23	recovery	Medium	P5 P6	2	53	Arizona	unidentified	P11	1
24	senators	Medium	P12 P13	2	54	Arkansas	unidentified	P12	1
25	width	Medium	P2 P3	2	55	bloodstream	unidentified	P2	1
26	critics	Medium	P5	1	56	EU	unidentified	P9	1
27	diameter	Medium	P4	1	57	Newsroom	unidentified	P1	1
28	employee	Medium	P11	1	58	Pret a Manger	unidentified	P10	1
29	fragments	Medium	P1	1	59	subscriber	unidentified	P14	1
30	Index	Medium	P2	1	60	tsunami	unidentified	P8	1
Number of lookups			46		Number of lookups			49
Total number of lookups 46 + 49 = 95								

VERB				ADJECTIVE			
No.	Words	Classified by LC9000	Searched by	Frequency	No.	Words	Classified by LC9000	Searched by	Frequency

No.	Words	Classified by LC9000	Searched by	Frequency
1	blamed	High	S1 S4	2
2	failed	High	S1 S2	2
3	hired	High	S12 S13	2
4	reducing	High	S4 S10	2
5	celebrate	High	S4	1
6	cost	High	S11	1
7	forced	High	S2	1
8	include	High	S9	1
9	obtain	High	S10	1
10	offer	High	S10	1
11	provide	High	S11	1
12	remains	High	S8	1
13	accused	Medium	S5 S6 S7 S8	4
14	fled	Medium	S6 S7 S8	3
15	issue	Medium	S12 S13 S14	3
16	flee	Medium	S5 S7	2
17	posed	Medium	S13 S14	2
18	restrict	Medium	S13 S14	2
19	expand	Medium	S10	1
20	launch	Medium	S9	1
21	strengthening	Medium	S12	1
22	tackling	Medium	S1	1
23	deemed	Low	S5	1
24	enroll	Low	S9	1
25	hosing	unidentified	S1 S2 S3	3
26	expediting	unidentified	S5 S7	2
27	lip-synching	unidentified	S12	1
Total number of lookup			**44**	

ADJECTIVE

No.	Words	Classified by LC9000	Searched by	Frequency
1	tiny	High	S3 S4	2
2	available	High	S9	1
3	effective	High	S11	1
4	financial	High	S10	1
5	harmful	Medium	S1 S2 S3	3
6	initial	Medium	S10 S11	2
7	vast	Medium	S5 S6	2
8	unhealthy	Medium	S3	1
9	wary	Low	S12	1
10	grainier	unidentified	S1 S2 S4	3
11	abandoned	unidentified	S5 S6	2
12	lunar	unidentified	S1	1
13	toxic	unidentified	S3	1
14	quirky	unidentified	S12	1
Total number of lookup				**22**

ADVERB

No.	Words	Classified by LC9000	Searched by	Frequency
1	currently	High	S4	1
2	recently	High	S14	1
3	increasingly	Medium	S13	1
4	partially	Low	S6	1
Total number of lookup				**4**