**Incidental Vocabulary Acquisition through Newspaper Reading:
The Impact of Content Familiarity**

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A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of

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Thesis Title   Incidental Vocabulary Acquisition through Newspaper Reading: The Impact of Content Familiarity

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ชื่อวิทยานิพนธ์	การเรียนรู้คำศัพท์โดยการอ่านข่าวหนังสือพิมพ์ภาษาอังกฤษโดยไม่
	เจตนา: ผลของความคุ้นเคยทางเนื้อหา
ผู้เขียน	นางสาววิไลวรรณ เล็บกะเต็ม
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ปีการศึกษา	2554

บทคัดย่อ

การศึกษานี้มีวัตถุประสงค์เพื่อศึกษาผลของความคุ้นเคยทางเนื้อหาต่อการเรียนรู้คำศัพท์จากการอ่านข่าวหนังสือพิมพ์ภาษาอังกฤษ และต่อความทรงจำความหมายของคำศัพท์ การศึกษานี้ยังมีวัตถุประสงค์เพื่อศึกษาทัศนคติของนักศึกษาที่มีต่อการเรียนรู้คำศัพท์จากการอ่าน กระบวนการเก็บข้อมูลแบบทำซ้ำถูกนำมาใช้ในการศึกษาครั้งนี้ โดยมีนักศึกษาชั้นปีที่ 2 วิชาเอกภาษาอังกฤษจากมหาวิทยาลัยทักษิณ วิทยาเขตสงขลา จำนวน 25 คน เป็นกลุ่มตัวอย่าง การเก็บข้อมูลใช้ระยะเวลาทั้งหมด 15 สัปดาห์ ในแต่ละสัปดาห์ นักศึกษาทำแบบทดสอบคำศัพท์ก่อนอ่าน จากนั้นนักศึกษาอ่านข่าวภาษาอังกฤษซึ่งมีคำศัพท์เป้าหมายจำนวน 10 คำปรากฏอยู่ หลังจากอ่านข่าวนักศึกษาทำแบบทดสอบคำศัพท์หลังอ่าน ตามด้วยแบบสอบถามความคุ้นเคยทางเนื้อหา หลังจากนั้น 2 สัปดาห์ นักศึกษาทำแบบทดสอบวัดความทรงจำคำศัพท์ ในสัปดาห์ที่ 15 นักศึกษาตอบแบบสอบถามทัศนคติเกี่ยวกับการเรียนรู้คำศัพท์จากการอ่าน ผลของการศึกษาสามารถสรุปได้ดังนี้

1. ผลของความคุ้นเคยทางเนื้อหาต่อการเรียนรู้คำศัพท์แสดงใน 2 บทอ่าน จากจำนวนบทอ่านทั้งหมด 15 บทอ่าน ซึ่งมีระดับความคุ้นเคยทางเนื้อหาที่หลากหลาย นักศึกษาที่คุ้นเคยกับเนื้อหาของบทอ่านสามารถเรียนรู้คำศัพท์ได้มากกว่านักศึกษาที่ไม่คุ้นเคยกับเนื้อหาของบทอ่านมาก่อน ซึ่งสามารถอนุมานได้ว่า ความคุ้นเคยกับเนื้อหาของบทอ่านทั้งสองส่งเสริมการเรียนรู้คำศัพท์เป้าหมายที่ปรากฏในบทอ่าน

2. ผลของความคุ้นเคยทางเนื้อหาต่อการจดจำคำศัพท์แสดงใน 3 บทอ่าน จากจำนวนบทอ่านทั้งหมด 15 บทอ่าน นักศึกษาที่มีความคุ้นเคยกับเนื้อหาของบทอ่านทั้งสามสามารถจดจำความหมายของคำศัพท์ที่เรียนรู้ขณะอ่านบทอ่านได้ดีกว่านักศึกษาที่ไม่มีความคุ้นเคยกับเนื้อหาของบทอ่าน ผลการศึกษานี้แสดงให้เห็นว่าความคุ้นเคยกับเนื้อหาของบทอ่านส่งเสริมการจดจำความหมายของคำศัพท์ที่เรียนรู้

3. นักศึกษามีทัศนคติที่ดีต่อการเรียนรู้คำศัพท์จากการอ่านบทอ่านภาษาอังกฤษและข่าวภาษาอังกฤษ

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ABSTRACT

The purposes of the present study were to investigate the impact of content familiarity on incidental vocabulary acquisition through reading as well as retention of new lexical items. Its aim was also to find out students' attitudes towards learning words incidentally through reading. Data were collected through a repeated-measures design with 25 second-year English major students from Thaksin University in Songkhla. Data collection went on for 15 weeks. Each week, the students completed a vocabulary pre-test prior to reading a news text containing 10 target words. After reading, they did a vocabulary post-test and a content familiarity questionnaire. Two weeks after reading each piece of news, they were given a vocabulary retention test. At week 15th, they responded to an attitude questionnaire towards learning words through reading. The results obtained can be summarized as follows:

1. Of the 15 texts with varying degrees of content familiarity, the effect of content familiarity on vocabulary acquisition was evidently shown in 2 texts. The students familiar with the texts content acquired more words than the students unfamiliar with the texts, implying that familiarity with the content of these texts contributed to incidental acquisition of the target words appearing in the texts.

2. The contribution of content familiarity on vocabulary retention was noted in 3 out of 15 texts. The vocabulary acquired by the students familiar with three pieces of news was retained better than the vocabulary acquired by those unfamiliar with the news. This finding indicates that familiarity with the subject matter facilitates the students' retention of previously acquired word meanings.

3. The students had positive attitudes towards learning words incidentally through reading English texts and news.

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Wilaiwan Lebkatem

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CHAPTER 1

INTRODUCTION

This thesis presents a study of the effect of content familiarity on second year English major students' incidental acquisition of unknown vocabulary while reading English newspapers. The introduction consists of the research rationale, its purposes, the research questions, the scope and limitations, the significance of the study, and a definition of terms.

1.1 Rationale of the Study

Vocabulary is central to language. Furthermore, it is crucially important to the language learner (Zimmerman, 1997). In terms of reading process, vocabulary knowledge is the general component knowledge in the process, and has been recognized as a critical feature of reading ability (Grabe, 1991).

The significant role of vocabulary knowledge has been supported by both first and second language reading research. For first language reading, Carrell and Eisterhold (1988) propose that automatic word recognition or sight vocabulary is the basis for skilled readers. It is what allows fluent readers to read material easily and effortlessly. In a similar view, Stanovich (1986) proposes that the good first language reader who possesses word recognition skill, large sight vocabulary, and reading skills gets greater reading achievement. The same is true for second language reading. As for the comprehension of second language reading material, sufficient vocabulary is the most important, whereas inadequate vocabulary knowledge is a serious problem (Levine & Reves, 1990).

Since there are over 54,000 word families in English, it is not worth spending class time specifically learning these words. Therefore, a way to manage the learning of huge amounts of words is through indirect or unintentional learning such as learning from context through extensive reading (Nation & Waring, 1997). Other

researchers also insist that reading is the best and easiest way to solve the vocabulary learning problem (Day & Bamford, 1998)

The role of reading, according to Day and Bamford (1998), is that reading can develop not only a large sight vocabulary, but also a general vocabulary knowledge and knowledge of the target language, the world and types of texts. As a result, much research on both first and second language development agrees that most vocabulary learning occurs naturally during reading (Day, Omura, & Hiramatsu, 1991; Huckin & Coady, 1999; Kweon & Kim, 2008; Nagy, Herman, & Anderson, 1985).

The advantages of vocabulary learning through reading over direct vocabulary teaching include the following: (a) it is contextualized, learners are provided with a sense of a word's use and meaning, (b) it encourages two simultaneous activities, vocabulary learning and reading, (c) it is more individualized, because vocabulary to be learnt is selected by learners. However, incidental learning can lead to unclear understanding, and misrecognition. To avoid these problems, well-developed vocabulary, reading strategies, and some previous knowledge of the topic are needed (Huckin & Coady, 1999).

The importance of previous knowledge in reading from a cognitive point of view is that reading is the construction of meaning from the written passage. To arrive at understanding, a reader connects information from the written passage with previous knowledge (i.e. knowledge of the language, the structure of text, topic knowledge, and world knowledge). Such knowledge is necessary to comprehend the text (Carrell & Eisterhold, 1988; Day & Bamford, 1998).

According to Carrell and Eisterhold (1988), there are two types of background knowledge readers possess, that is formal schema, and content schema. Formal schema refers to background knowledge associated with the rhetorical organizational structure of the text, and content schema refers to background knowledge about the content of the text. This knowledge, according to Grabe (1991), is one of the six general component skills and knowledge areas in reading.

In terms of background knowledge in second language reading, much research has shown the positive effects of familiar topics on text comprehension (e.g., Carrell, 1987; Erten & Razi, 2009; Huang, 2009; Leeser, 2004; Pulido, 2004b) and

lexical inferencing (e.g., Pulido, 2007). In brief, background knowledge has a major influence on reading process. Thus, it should also be a crucial determinant of vocabulary learning through reading. However, it is surprising that research investigating the impact of this reader based factor on incidental acquisition of L2 vocabulary is scarce (Pulido, 2003, 2004a). In particular, the majority of the research used inauthentic materials to assess a small number of nonsense vocabulary or invented word acquisition.

To highlight the benefit of authentic material in reading, Gilmore (2007) states that authentic material is a real language produced by a real writer for a real reader. Because authentic materials are intended to communicate a message rather than highlight the target language, it is not surprising that they are more interesting than contrived materials. In the classroom, the use of authentic materials is also useful because learners are exposed to real language being used in a real context (Berardo, 2006).

According to Berardo (2006), anything can be used as authentic materials. So, one useful authentic resource is newspapers. This authentic resource is more related to the learners' daily situation. It provides the insightful understanding of the situation in the written passage. In terms of accessibility, learners can easily be exposed to it in order to learn the new vocabulary incidentally by themselves.

So, given the limited number of studies on the effect of content familiarity on incidental vocabulary acquisition, this study aims to promote the use of authentic news material to enhance vocabulary development through reading. It investigates whether or not vocabulary knowledge can be improved by reading authentic texts with familiar content. The study mainly focuses on the effect of content schema on the acquisition of unknown vocabulary. The study extends the research on the effects of background knowledge on incidental vocabulary acquisition to the context of university students in Thailand.

1.2 Purposes of the Study

The study investigates the impact of background knowledge, hereafter refers to as content familiarity, on incidental acquisition of L2 vocabulary from

reading both familiar and unfamiliar texts chosen from newspapers. The research questions investigated in the study are as follows:

1. Does the degree of familiarity contribute significantly to gain of new vocabulary encountered in the texts?

2. Is the impact of content familiarity still observed over time?

3. What are learners' attitudes towards learning words incidentally through reading?

1.3 Scope and Limitations of the Study

The study was designed to investigate only the impacts of one reader-based factor, content familiarity, on incidental acquisition of L2 vocabulary through reading authentic texts specifically chosen from newspapers, so text comprehension was not considered. Also, learners' proficiency levels were not taken as an independent variable. Specifically, the study investigated the acquisition of targeted words from each text. The study was limited to second year EFL students at Thaksin University, Songkhla campus.

1.4 Significance of the Study

Much research has been done on the effects of content familiarity on text comprehension. They have mainly studied whether or not content familiarity affects comprehension. Moreover, studies have concentrated more on the effects of content familiarity on the processes involved in lexical inferencing during reading, rather than on the acquisition of vocabulary from such products. There are a few studies investigating the roles of content familiarity on incidental vocabulary acquisition. However, research investigating the roles of content familiarity on incidental vocabulary acquisition through reading authentic texts is limited.

So, this study examined the impacts of content familiarity on incidental acquisition of L2 vocabulary through reading authentic texts. It is hoped to provide a better explanation for the influences of content familiarity on incidental vocabulary acquisition while reading.

1.5 Definition of Terms

1. Vocabulary gain means the ability to translate the meanings of the unknown target words from L2 to L1 after reading familiar and unfamiliar texts.

2. Vocabulary retention refers to the ability to recall the meanings of the acquired target words two weeks after reading the texts.

3. Content familiarity refers to the subjects' background knowledge associated with the content of the texts (i.e. content schema).

4. Incidental vocabulary acquisition through reading refers to the acquisition of unknown vocabulary as a by-product of reading (Huckin & Coady, 1999).

CHAPTER 2

LITERATURE REVIEW

This chapter presents a review of literature and related studies for the present study. In the chapter, the following issues are reviewed: vocabulary learning; lexical inferening; factors affecting inferencing process; background knowledge; and related studies on the effect of content familiarity on incidental vocabulary acquisition through reading.

2.1 Vocabulary Learning

Among various linguistics subsystems, vocabulary knowledge is one that language learners need to develop in order to succeed in language learning (Barcroft, 2004; Carrell & Eisterhold, 1988; Grabe, 1991; Zimmerman, 1997). Learners possessing large vocabularies size are more competent in a wide range of language skills than learners with smaller vocabularies (Hamada, 2009; Meara, 1996).

Vocabulary knowledge is important in all aspects of language learning. It is a critical component of reading comprehension (Muter, Hulme, Snowling & Stevenson, 2004; Ouellette, 2006; Tannenbaum, Torgesen & Wagner, 2006), oral communication (Read, 2004) and writing (Laufer & Nation, 1995). In addition, it is the best predictor of learners' academic achievement across subject matter domains (Saville-Troike, 1984). Higher-level of language processes such as grammatical processing, construction of schema and text model are also influenced by this knowledge (Chall, 1987 cited in August, Carlo, Dressler & Snow, 2005). Regarding vocabulary and communication, vocabulary knowledge is even more important than grammatical knowledge (Barcroft, 2004) because "lack of grammatical knowledge sometimes impedes successful transmission of meaning, however, absence of vocabulary often impedes the transmission of meaning completely" (Wilkins, 1972 cited in Barcroft, 2004, p. 201).

2.1.1 Intentional and Incidental Vocabulary Learning

There are two types of learning activities in second and foreign language learning: intentional and incidental learning. Hatch and Brown (1995) define intentional learning as the type of learning activity that is designed, planned for, or intended by teachers or learners, while incidental learning is a by-product of other activities. In summarizing the literature on the role of consciousness in second language learning, Schmidt (1990) proposes that the intentional and incidental learning are related to demanding of noticing, automatic or required attention, because it is the important factor for converting input to intake.

In terms of vocabulary learning, various researchers clearly explain the distinction between intentional and incidental vocabulary learning (Barcroft, 2004; De Bot, Lowie, & Verspoor, 2005; Hatch & Brown, 1995; Hulstijn, Hollander, & Greidanus, 1996; Joe, 1998). De Bot et al., for example, identify the distinction between intentional and incidental vocabulary learning by giving clear examples of these two vocabulary learning processes. To them, an example of intentional learning is learning words from decontextualized lists, while learning words by reading and inferring meanings from context is considered as incidental learning. This distinction according to them is reflected in various terms, e.g., 'acquisition' vs. 'learning' and 'implicit' vs. 'explicit'. From the point of view of Barcroft and Joe, the distinction between intentional and incidental vocabulary learning involves learners' attention. For them, learners acquiring of words while intending to do so is referred to as intentional vocabulary learning, such as studying a wordlist or completing exercises in a workbook for a group of target words. By contrast, learning words without specific focus to them is considered as incidental vocabulary learning.

Observing the role and interaction of implicit and explicit learning process in incidental vocabulary acquisition, Rieder (2003) points out that learning vocabulary incidentally is composed of implicit and/or explicit learning process. Implicit learning process happens without the learner's awareness, while the explicit takes place without learner's attention but involves online awareness and hypothesis formation. Her view of incidental vocabulary acquisition is presented in figure 1.
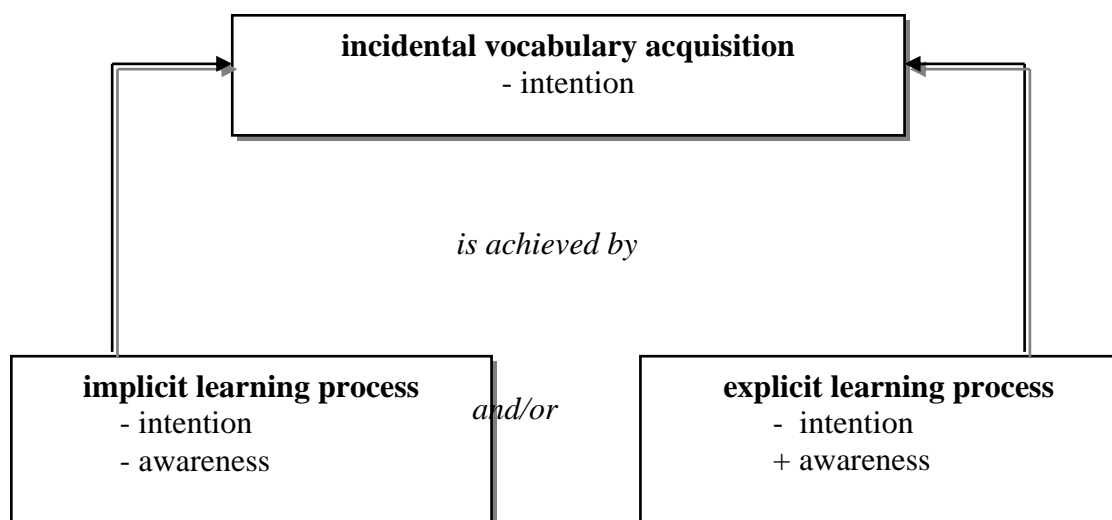
Figure 1: Incidental Vocabulary Acquisition as a Process Involving Implicit and/or Explicit Learning (Rieder, 2003: 28)

2.1.2 Incidental Vocabulary Learning through Reading

Reading is a main source of input for learners in the foreign language classroom (Hasbun, 2006), an important contributor to the development of many L2 language skills (Brantmeier, 2003), and normally the main context for continued vocabulary acquisition (Nagy, Herman & Anderson, 1985; Paribakht, 2005). Brantmeier defines reading as an active process and a demanding skill. It requires readers to use their background knowledge, their linguistic knowledge, the situational context, as well as the contextual clues to interpret the meaning of a text. According to Bernhardt (2005), the following aspects are involved in reading at different proportion: L1 literacy (20%), L2 language knowledge with focus on vocabulary knowledge (30%), and other unexplained variables such as comprehension strategies, content knowledge, interest, motivation (50%).

In the field of vocabulary acquisition, reading is a strategy recommended for the learning of vocabulary (Hasbun, 2006). The acquisition of vocabulary while learners are engaged in this activity is usually referred to as incidental learning (Nagy et al., 1985). Paribakht and Wesche (1999), nevertheless, argue that vocabulary learning through reading is in some fundamental sense not incidental as success in acquiring a word meaning requires both attention to a new word and learners' effort to find its meaning. The learning of words in this written context is involved four steps; first, learners focus on the word form; second, they make use of context to derive word meaning; third, they integrate this new meaning into existing knowledge systems; and fourth, they consolidate form-meaning connection (Rieder, 2003).

Hulstijn et al. (1996) suggest, when learners read, words are more apt to be acquired incidentally if the following conditions are involved in their learning process: (a) there is a significant L2 exposure and (b) learners know other L2 related words. Although multiple exposures to a word in a text positively contribute to incidental vocabulary acquisition (Fraser, 1999; Huckin & Coady, 1999; Nagy et al., 1985), there is no agreement as to how many exposures are needed for full acquisition. Nation (1990), for example, proposes that from 5 to 16 exposures are needed for full acquisition of new vocabulary while Nagy et al. suggest the

probability of learning a word to be between 10 and 15 exposures. In terms of other L2 related words learners know, Nassaji (2003) proposes that in order to guess the meaning of unknown words in context successfully, learners are required to possess prior knowledge of at least 95% of the words contained in a text. They also need to have a sight vocabulary of the 3,000 or so most-frequent words in the language.

Much research has demonstrated the powerful effect of reading on the development of vocabulary knowledge (Fraser, 1999; Huckin & Coady, 1999; Kweon & Kim, 2008) and has proposed that a large number of words learners know have been acquired through this vocabulary learning process (Day, Omura & Hiramatsu, 1991; Huckin & Coady, 1999; Hulstijn et al., 1996; Joe, 1998; Kweon & Kim, 2008). A study by Day et al., for example, found that Japanese EFL learners learned vocabulary incidentally while reading for entertainment in the classroom. In another study, Fraser showed that eight Francophone university students acquired vocabulary while reading for meaning. More recent researchers such as Kweon and Kim also observed L2 Korean learners of English acquired unknown vocabulary incidentally as they read authentic texts.

Although incidental vocabulary acquisition is the main sources by which second language learners develop their vocabulary knowledge, some researchers suggest that it has many serious limitations. Such limitations are; (1) guessing is imprecise as many reading tasks requires precise interpretation; (2) accurate guessing calls for accurate word recognition and careful monitoring because there are a large number of deceptive words that can easily mislead learners; (3) guessing takes time and therefore slows down the reading process; (4) guessing is effectively successful only when learners well understand the context and know almost all of the surrounding words in the text; (5) guessing requires effective reading strategies; (6) guessing doesn't translate into acquisition; and (7) guessing is inadequately effective in the acquisition of multiword lexical items (Haastrup, 1991 cited in Lawson & Hogben, 1996; Huckin and Coady, 1999; Rieder, 2003). Furthermore, it is always impossible to predict vocabulary learning outcomes from reading because different learners focus on different words, invest different levels of effort into figuring out the unknown word meanings, and differ in the possession of prior knowledge (Paribkht & Wesche, 1999).

2.1.3 Vocabulary Retention

When learners wish to retain the meaning of new lexical items they have learned, research has shown that learners rely on several kinds of mnemonic procedure, a procedure that is applied to a particular word in order to help retain its meaning. Those procedures are as follows: (1) they write the word they wish to remember with or without L2 translation; (2) they repeat the word mentally or aloud many times; (3) they return to a word sometimes after they have encountered it and repeat it several times mentally or aloud; (4) they use the word in a sentence or use the word in a conversation with someone; (5) they associate the word with a particular situation they have previously experienced; (6) they connect the word with another word in the L1; (7) they associate L2 words with other L2 words by sounds; (8) they connect the word with a visual image that they make in their mind; and (9) they talk about the word with someone (Cohen & Aphek, 1981; Sanaoui, 1995).

According to the Involvement Load Hypothesis, retention of unknown words generally depends on the degree of involvement in processing the words. Such involvement consists of learners paying attention to the words' pronunciation, orthography, grammatical category, meaning, and semantic relation to other words. The higher the involvement of these elements, the better the retention of word meanings (Hulstijn & Laufer, 2001). If the meaning is not to fade quickly from the learners' working memory, it is suggested that some deeper level of mental effort on the part of learners to find a word meaning is necessary (Paribakht & Wesche, 1999).

2.2 Lexical Inferencing

Research has shown that L2 readers use a variety of vocabulary learning strategies when they encounter unknown words. These strategies include ignoring unknown words (i.e., made no further reference to), consulting a dictionary or another individual for their meanings, writing them down for further consultation with a teacher, or inferring their meanings from context in which the words appear (Fraser, 1999; Paribakht & Wesche, 1999; Sanaoui, 1995). Consulting and inferencing are productive strategies whereas ignoring is unproductive one. In particular,

consulting is an explicit vocabulary-learning strategy especially when it is used to verify an inference (Fraser, 1999).

Among various word-learning strategies mentioned above, inferring word meanings from context has been found to be the most frequent and preferred strategy learners used to generate the meaning of new words while reading (Cooper, 1999; Fraser, 1999; Paribakht & Wesche, 1999). In Cooper's study, learners relied on lexical inferencing 28% of all strategies used. Fraser's learners inferred in 58% of the cases in which an unknown word was encountered. The learners participating in Paribakht and Wesche's study used lexical inferencing most frequently, accounting for 80% of strategy use.

Lexical inferencing is a vocabulary learning strategy widely known to enhance comprehension and contribute to immediate learning and retention of lexical and semantic information about words if successful (Paribakht & Wesche, 1999). It is a strategy primarily used in the process of incidental vocabulary learning through reading (Fraser, 1999) Furthermore, it is a process whereby learners use the clues from the context to derive the meaning of unknown words (Frantzen, 2003). Indeed, it does involve "conscious cognitive operations, i.e. selective attention, hypothesis formation and strategy application" (Rieder, 2003, p. 32).

Hatch and Brown (1995) propose that when learners pay attention to unfamiliar words or word characteristics in context, the process is known as "input processing". They identify five stages in this input processing process. These stages are (a) the learners' initial encountering a novel word; (b) taking in its form; (c) comprehending its meaning; (d) consolidating the form and its meaning in memory; and, (e) actively using the word in production.

In the inferencing process, previous L2 lexical inferencing research has showed that learners employ various knowledge sources and strategies while inferring new word meanings (De Bot et al., 1997; Fraser, 1999; Nasaji, 2003; Qian, 2005). Qian demonstrated two main types of knowledge sources drawn on as his learners performed their lexical guessing. These were intralingual vocabulary knowledge and knowledge of the world. Intralingual knowledge included phonological/orthographic forms, morphology, syntax, and meaning. Among the four intralingual knowledge

sources, meaning or lexical semantic information was used most frequently, followed by morphology, phonological/orthographic forms and syntax.

According to Nasaji (2003), there are a total of 11 categories of strategy types and knowledge sources learners employed to infer word meanings from context. Strategy types are repeating, verifying, analyzing, monitoring, self-inquiry, and analogy while knowledge sources include grammatical knowledge, morphological knowledge, knowledge of L1, world knowledge, and discourse knowledge. Of all the strategies and knowledge sources, repeating and world knowledge were the main strategy and knowledge sources learners used. Morphological knowledge appears to help learners infer word meanings. These learners received the highest means of success when using this knowledge to guess word meanings. Among strategies, verifying, self-inquiry, and repeating are associated with higher means of success than other strategies. The definitions of the eleven categories of knowledge sources and strategy types are shown in Table 2.1.

Table 2.1: Definitions of Knowledge Sources and Strategies Students Used to Make Lexical Inferencing (Nassaji, 2003: 656-657)

Knowledge sources	Definitions
Grammatical knowledge	Using knowledge of grammatical functions or syntactic categories, such as verbs, adjectives, or adverbs
Morphological knowledge	Using knowledge of word formation and word structure, including word derivations, inflections, word stems, suffixes, and prefixes
World knowledge	Using knowledge of the content or the topic that goes beyond what is in the text
L1 knowledge	Attempting to figure out the meaning of the new word by translating or finding a similar word in the L1
Discourse knowledge	Using knowledge about the relation between or within sentences and the devices that make connections between the different parts of the text

Strategies	Definitions
Repeating	Repeating any portion of the text, including the word, the phrase, or the sentence in which the word has occurred
Verifying	Examining the appropriateness of the inferred meaning by checking it against the wider context
Self-inquiry	Asking oneself questions about the text, words, or the meaning already inferred
Analyzing	Attempting to figure out the meaning of the word by analyzing it into various parts or components
Monitoring	Showing a conscious awareness of the problem or the ease or difficulty of the task
Analogy	Attempting to figure out the meaning of the word based on its sound or form similarity with other words

According to De Bot et al. (1997), a variety of knowledge sources in the inferencing process range from knowledge of sentence-level grammar, word morphology, punctuation, and knowledge of the world, to knowledge of discourse and text, homonymy, word associations and cognates. In addition, there are individual differences in the knowledge sources employed. These differences seem to be associated with individual L2 learning experience, their L1, and their familiarity with the text topic. In Kaivanpanah and Alavi's (2008) study, analysis of the compound words into constituents and collocation to generate a word meaning are also apparent.

Fraser (1999) characterizes two types of processes involved in inferencing: word identification and sense creation. Inferencing through word identification is a fast, automatic, data driven process in which the form of the unknown word activates an L1 or L2 association in the learners' mental lexicon. In word identification inferences, the text context plays a minimal role in the process. The latter process, inferencing through sense creation, is regarded as a context-centered process; meaning is created based on language and situational clues contained in the text. In addition, sense creation processes are used most frequently (i.e., 65% of the time) and quiet effectively because comprehension is reached 78% of the time. Nasaji (2003) and Bensoussan and Laufer (1984) propose that inferences using word form associations rather than the use of cues from the text context often lead to misinterpretation of word meanings.

Osburne and Mulling (1998), on the other hand, propose three strategies learners of English as a second language use to guess the meaning of a word. These strategies include cognate, morphology and context. Out of the three strategies, the learners use the cognate strategy the most.

It can be concluded here that in the inferencing process, learners use all available linguistic cues in combination with their general knowledge of the world, their awareness of context, and their relevant linguistic knowledge to guess the meaning of a word. The flexible application of various vocabulary processing strategies, ranging from local ones such as graphemic identification to global ones such as the use of context is indeed required for effective word inferencing (Huckin & Coady, 1999). In addition, various types of information, such as morpheme, syntactic

and semantic information can also be used to connect the word form with its meaning (De Bot et al., 1997).

2.3 Factors Affecting Inferencing Process

A number of factors appear to play a role in inferencing process. Such factors closely relate to the two logical components of the reading process, the text related and the reader related factors (Brantmeier, 2003). These include the nature of the written texts in which words appear, features of given words, learner knowledge and effort, and the mental tasks with which learners interact with the words. Research has identified the characteristics of these factors that influence word inferencing from written texts (Kaivanpanah & Alavi, 2008, 2009; Lawson & Hogben, 1996; Na & Nation, 1985; Nasaji, 2003, 2006; Paribakht, 2005; Paribakht & Wesche, 1999; Qian, 2005).

2.3.1 Text Related Factors

Text related factors entail *text characteristics*, *word characteristics*, and *context*.

2.3.1.1 Text Characteristics

Research has shown that the text topic, its genre, and informational content all influence learners motivation and their success in guessing a word meaning when reading (Huckin & Coady, 1999; Paribakht & Wesche, 1999; Shokouhi & Maniati, 2009). Shokouhi and Maniati, for example, propose that expository texts enhance reader's inferencing of unfamiliar words more than narrative texts. Other text characteristics, sentence length, the amount of relativization or embedding, and abstract, specialized, low frequent vocabulary, also play a similar role. Indeed, these characteristics contribute to text difficulty, a primary text related factor found to influence lexical inferencing, and lead to inferencing difficulty (Frantzen, 2003; Kaivanpanah & Alavi, 2008). This is because learners are less able

to use contextual clues presented in the complex text to generate the meaning of unknown words (Frantzen, 2003; Kaivanpanah & Alavi, 2008; Na & Nation, 1985; Paribakht & Wecher, 1999). A very complex text with a high density of previously unknown words, in particular, make learners frustrated and give up entirely. Similarly, if the text is too easy, with only a few unknown words, learners don't need to stop at individual words to generate their meaning because general comprehension of the text is possible (Na & Nation, 1985; Paribakht & Wecher, 1999).

2.3.1.2 Word Characteristics

The characteristics of the word to be learned appear to affect the lexical inferencing processes (Frantzen, 2003; Na & Nation, 1985; Nasaji, 2003). Word characteristics relate to the part of speech, the degree of concreteness or abstractness, the transparency of word structure, the likelihood of interference, the resemblance between word form and its meaning (Mondria & Wit-De Boer, 1991). With regard to the part of speech of a word, Na & Nation propose that it evidently affects ease of guessing. Also, some low-frequency vocabulary is not easy to be learned. To help learners acquire low-frequency vocabulary, Pellicer-Sanchez and Schmitt (2010) suggest that teachers add explicit teaching tasks to supplement the reading.

Nasaji (2003) demonstrates that the physical form of the words and how they look are the major source of problems in inferring word meanings from context. Words with similar looking forms to other unrelated words cause a major problem in inferencing process. This is because these words mislead learners to interpret their meanings wrongly by confusing them with other similar-looking but semantically unrelated words. Similarly, Frantzen (2003) proposes that physical appearance of a word affects inferencing and its influence can be stronger than context cues. In addition, Paribakht and Wesche (1999) note that word characteristics influence learners' choice of knowledge sources in inferencing word meanings:

Sentence-level grammatical knowledge was important in inferencing meanings of all word categories; in the case of adjectives, word-order knowledge was often used to determine which words modified others. Word morphology cues were mainly used in verb inferencing (particularly the recognition of verb endings). Inferencing based on punctuation was limited to nouns, involving a few cases of capitalization (marking proper nouns) and commas (recognized as separating noun series) (p. 211).

Polysemous words or words with several senses also have been found to influence guessing and complicate the process even more (Rieder, 2003). This claim is supported by many researchers. For example, in a study to test the comprehension of words by asking learners to guess the unfamiliar words in the sentence context, Bensoussan and Laufer (1984 cited in Verspoor & Lowie, 2003) found that learners' performance on guessing the meaning of polysemous words was far worse than on guessing the meaning of other words. In addition, Schemitt (1998) found that learners rarely possess all the meaning senses of a polysemous word. So, Verspoor and Lowie suggest that providing a core sense of polysemous words make learners guess these word meanings, figurative meaning in particular, more effectively.

2.3.1.3 Context

Inferencing is based on the assumption that learners are able to process the context cues to derive the meaning of unknown words. Carton (1971 cited in Kaivapanah & Alavi, 2008) proposes three kinds of context cues that are used in lexical inferencing: contextual, intralingual, and interlingual cues. Contextual cues lead learners to activate their knowledge of the world and co-text. Intralingual cues refer to the learners' knowledge of the target language such as its structure while interlingual cues are knowledge of cognate or regularities of phonological transformations. Many researchers (e.g., Day et al., 1991; Kaivapanah & Alavi, 2009) have supported the facilitative effects of context cues on lexical inferencing. They propose that learners can derive the meaning of unknown words while reading by

using the context in which the words appear. In addition, sufficient and clear semantic and linguistic cues are crucially important in the process (Na & Nation, 1985). Vague and ambiguous contexts, on the other hand, do not lead to accurate inferencing of the meaning of target words (Frantzen, 2003; Hulstijn, 1992).

Not only insufficient contextual cues, but also rich context can hamper word-meaning inferencing. According to Frantzen (2003), the richness of the contextual cues can inhibit the degree of elaboration of the new word because when the context is rich in cues for the word meaning, readers do not need to examine the word or its feature in detail. Furthermore, the rich context is sufficient for extracting of a possible meaning. Therefore, the reader might pay minimal attention to the word itself. Similarly, Mondria and Wit-De Boer (1991) explain that "because of the strong association of context and meaning, insufficient attention is paid to the association of word and meaning" (p.262). For them, pregnant or rich contexts do indeed lead to improved guessing but not to improved retention. By contrast, a less rich context, or an unsupportive one requires the reader to analyze the word deeper. If the reader wants to build a representation of the text, it will be necessary to utilize other deliberate procedures for analysis of the word.

Many researchers have questioned the reliability of context and its effect on lexical inferencing. For example, Lawson and Hogben (1996) found that there was no association between their learners' use of context and recall of meaning, or contextual cues did not help their learners to establish representation for the meanings of the words. In Frantzen's (2003) study, on average, learners could infer correctly less than 30% of the unfamiliar words appearing in context. She found various reasons why her learners were often not directed to correct interpretations of unknown words presented in context; first, the context was either vague, ambiguous, or misleading; second, contexts dissuaded them away from the correct meanings they already know and persuade them to guess incorrect meanings; and third, they did not pay attention to details in context. Kelly, (1990 cited in Frantzen, 2003) suspected the reliability of contextual cues even in simple contexts. In one study testing the learners' ability to generate the meaning of unknown words in context when just one word in the context was unknown, he found that the context did not contribute to

success in guessing. His findings led him to conclude that contextual guessing alone seldom allows the reader to get the likely correct meaning of an unknown word.

2.3.2 Reader Related Factors

Reader related factors include *vocabulary knowledge*, *language proficiency*, *attention to details*, and *cognitive and mental effort*.

2.3.2.1 Vocabulary Knowledge

Research has found that the reader's vocabulary knowledge is the best predictor of reading ability and an ability to understand text. In particular, it is an essential prerequisite for lexical inferencing (Huckin & Coady, 1999; Nasaji, 2003; Pulido, 2007). Surveying research on second language vocabulary teaching and learning, Read (2004) differentiates two types of vocabulary knowledge: *breadth* and *depth*. The quantity or number of words learners know refers to "*breadth*" of vocabulary knowledge, while "*depth*" of vocabulary knowledge has been used to indicate the quality of vocabulary knowledge, or how well ones know a word (Read, 1993). Ellis (1994) makes a distinction between receptive and productive vocabulary knowledge. Receptive vocabulary is considered as the words and expressions students can understand when reading or hearing them while productive vocabulary refers to the words and expression that the students can use correctly when producing oral or written language. Research has identified various kinds of knowledge associated with a word that learners must know. Such knowledge consists of knowledge of a word pronunciation, spelling, register, stylistic, morphological feature, syntactic and semantic relationship with other words, antonymy, synonymy, and hyponymy (Haastrup & Henriksen, 2000; Henriksen, 1999).

As Nasaji (2006) pointed out, "lexical inferencing is a meaning construction process that depends heavily on the richness of the learner's semantic and conceptual system" (p.396). This is because "when learners know more vocabulary in a passage they also have more available contexts and clues from which to interpret specific relationships among ideas, and any new vocabulary contained

therein" (Pulido, 2007, p.81). In particular, learners with depth of vocabulary knowledge are able to notice and use much more contextual clues in guessing word meanings. This ability, as a result, can lead to a higher rate of success in lexical inferencing (Qian, 2008). By contrast, the higher learners' proportion of unknown words in the surrounding context, the lower the likelihood of their success in guessing (Nasaji, 2003).

2.3.2.2 Language Proficiency

The process of making inference is also influenced by learners' L2 proficiency level. The more advanced the learners are, the more successful they are in lexical inferencing (Kaivanpanah & Alavi, 2009). Na and Nation (1985) confirm this claim with clear evidence. In one study which aimed to see what factors affected difficulty of guessing, they found high proficiency learners outperformed low proficiency learners. Of 100% of the unknown words, the correct guesses made by the high proficiency learners were 85%, while 30-40% by the low proficiency ones

Furthermore, learners with different proficiency levels tend to use different cues, knowledge sources and strategies to lexical guesses (Kaivanpanah & Alavi, 2008, 2009; Riazi & Babaei, 2008). According to Riazi and Babaei, elementary students use contextual, intralingual, and interlingual cues to guess unknown word meaning, while intermediate students make use of contextual clues only and advanced learners rely on contextual and intralingual clues. In addition, the more proficiency learners extensively use L2 linguistic knowledge sources and integrate information from different sources, while limited proficiency learners do not connect unknown words to the co-text and rely mostly on word-for-word translation of the co-text to comprehend the word meanings.

2.3.2.3 Attention to Details and Cognitive and Mental Effort

The effect of these two reader based factors on lexical inferencing has not been widely and directly explored. Only a few researchers discuss about these factors (Frantzen, 2003; Fraser, 1999; Paribakht & Wesche, 1999). Frantzen

investigated lexical inferencing of Spanish learners and reported that the learners did not pay much attention to details in context, a factor that should help them infer correct meanings. She further notes that inattention occurred not only when reading uneasy texts, but also in easy ones.

Regarding cognitive and mental effort, Fraser (1999) investigated lexical processing strategies (e.g., ignore, consult, infer) used and their impact on word learning. With regard to lexical inferencing, she found that the better the mental effort in processing a text, the better the possibility of lexical inferencing. In other words, learners' ability to associate words with appropriate meanings increased as a function of mental effort and extensive processing. Similarly, Paribakht and Wesche (1999) note that what influence lexical guessing includes those factors concerning mental activities that readers are engaged in when they experience a new word, their focus of attention, and the nature and depth of their reaction to novel lexical information.

2.4 Background Knowledge

Background knowledge is defined as personal knowledge structures in the cognitive domain of the learner (Brantmeie, 2003). In the field of language comprehension, this personal background knowledge has been formalized as schema theory. According to Carrell and Eisterhold (1988), language processors possess two types of schema, namely *content schema* and *formal schema.* Content schema refers to a reader's background or world knowledge i.e. knowledge of the subject of the text or related knowledge due to personal experience and cultural knowledge. In other words, content schema is mainly about the content area of a text. According to Alderson (2000 cited in Erthen & Razi, 2009), content schema can be further divided into two different types: background knowledge and subject matter knowledge. The knowledge that may or may not relate to the content of a specific text is referred to as background knowledge while the knowledge that is directly relevant to the text content and topic refers to subject matter knowledge. Formal schema, which is also called textual schema (Singhal, 1998), by contrast, is described as background knowledge associated with the formal, rhetorical and organizational structures of

various kinds of texts or information about differences among rhetorical structures. With regard to formal schema, it has been suggested that "texts with familiar rhetorical organization should be easier to read and comprehend than texts with unfamiliar rhetorical organization" (Carrell, 1987, p. 464).

Research on background knowledge mostly has been done to investigate its effect on text comprehension. Mainly, they seek to find out whether or not this knowledge influences text comprehension (e.g. Al-Shumaimer, 2006; Brantmeier, 2003; Droop & Verheven, 1998; Erthen & Razi, 2009; Jalilifar & Assi, 2008; Leeser, 2004; Lin, 2004; Pritchard, 1990; Pulido, 2004b). Consistently, results obtained from these studies demonstrate the substantial effects of background knowledge on reading comprehension.

The main focus of the above experiments is on the content schema, which can be further divided into two related aspects: topic or subject matter knowledge and cultural knowledge. These researchers (i.e. Al-Shumaimer, 2006; Brantmeier, 2003; Leeser, 2004; Pulido, 2004b) pay attention to prior knowledge of the subject matter of a text. They consistently claim that comprehension is enhanced when the reader has prior knowledge of the text topic. In addition, "A lack of familiarity with the content may hinder vocabulary and syntactic development. Topic familiarity may relate to certain level of vocabulary knowledge and therefore may contribute to reading comprehension" (Brantmeier, p. 41). The studies conducted by Pulido, Leeser and Brantmeier found the effect of topic familiarity on reading comprehension of students of Spanish, Among these studies, Pulido and Leeser used script-based narrative passages and written recall tasks to assess learners' comprehension of a text given. Al-Shumarmeri found the effect of this factor on reading comprehension of Saudi EFL learners.

The following studies focus on content schema related to cultural knowledge (Droop & Verheven, 1998; Erthen & Razi, 2009; Jalilifar & Assi, 2008; Lin, 2004; Pritchard, 1990). To assess the effect of cultural background knowledge, these studies mainly use two types of texts, i.e. texts based on the original version and texts nativized into learners' culture. They reveal that when learners are familiar with cultural norms, they interpret text better than when they are not. In addition, they seem to find it easier to allocate their attentional resources to more linguistic elements

of the culturally familiar texts. Therefore, language learners should learn the culture that underlies language to succeed in learning language because it positively affects their comprehension (Huang, 2009; Tseng, 2012).

In addition, other researchers have demonstrated the robust roles background knowledge play on text comprehension. Carrell and Eisterhold (1983, 1988) propose that in the process of comprehending a text, one's linguistics knowledge alone is not sufficient for comprehending words, sentences and whole texts. Instead, it involves the interaction between the reader's prior knowledge and the text as the text does not carry meaning by itself. In order to construct a coherent mental representation of a text, the interaction between explicitly stated textual information and background knowledge is required (Pulido, 2004b). In addition, having appropriate background knowledge may have directed learners to pay more attention to input while reading the more familiar text. Then, the local and global contextual cues that "activated the readers' syntactic, semantic, and pragmatic knowledge in constructing the meaning of the text were held in working memory and must have constrained ongoing textual interpretation" (Pulido, 2007, p. 79).

According to Carrell and Eisterhold (1983), the text comprehension process is guided by the principle that "every input is mapped against existing schema and that all aspects of that schema must be compatible with the input information" (p. 82). From this principle, two fundamental modes of information processing called "bottom-up" and "top-down" are generated:

Bottom-up processing is evoked by the incoming data; the features of the data enter in the system through the best-fitting bottom level or specific schema. As these schemata converge into higher level, more general schemata, these too are activated. The bottom-up processing mode is called "data-driven." Top-down processing occurs as the system searches the input for confirmation of predictions made on the basis of higher order, general schemata. Top-down processing is called "conceptually-driven (p. 82).

2.5 Related Studies

Few studies have concentrated on the effect of background knowledge on incidental acquisition of new vocabulary containing in the text reading. Research directly examining the role of this factor on the incidental acquisition of L2 vocabulary is as follows:

Pulido (2003) examined the impacts of topic familiarity on incidental vocabulary acquisition through reading with ninety-nine adult learners of Spanish as an L2. She used four brief narrative passages (164-172 words each) pertaining to be more or less familiar to the learners as materials. The more familiar passages were "*The Trip to the Supermarket*", and "*The Doctor's appointment*". The less familiar passages were "*Publishing an Article*" and "*Buying a home*". The target words to be tested were 32 nonsense words, all of which represented concepts associated with the story scenarios, were used in the study to ensure that no learners had previous knowledge of the target words. They were chosen from the four texts, eight words per each text. Two vocabulary tests, a translation production test and a translation recognition test were used to assess the learners' incidental vocabulary gain and retention. Two days after reading the four texts, the two tests were given to them to assess their vocabulary gain. Twenty eight days after reading the texts, the tests were administered to them again to test their vocabulary retention. The results obtained did not consistently reveal an effect of background knowledge on vocabulary gain and retention. First, effects of topic familiarity obtained on the translation production test did not occur. Second, on the translation recognition test, the effects of topic familiarity were obtained only on the measure of gain (i.e., 2 days after reading).

Pulido (2004a) studied the effect of cultural familiarity on immediate incidental vocabulary gain of 10 nonsense words through reading four narrative passages. The four texts used in the study included both culturally familiar and culturally unfamiliar versions of these two texts "*Registering for Classes*" and "*Grocery Shopping*". Twenty-three high-intermediate learners of Spanish as an L2 served as participants. The students' vocabulary gain was assessed using an adapted

version of the Vocabulary Knowledge Scale. It was given to them immediately after reading. According to the results obtained, the effect of cultural background knowledge revealed, namely, vocabulary gains were greater after participants read the culturally familiar stories.

More recently, Pulido (2007) examined the role of topic familiarity on difficulty of inferring the meaning of unknown words and success in lexical inferencing to test the hypothesis that topic familiarity would significantly have an effect on both lexical inferencing and degree of ease/difficulty in lexical inferencing. Thirty-five adult L2 learners participated in the study. The 17 nonsense words to be learned contained in two texts, one depicting a more familiar scenario (The Trip to the Supermarket) and another (Publishing an Article) a less familiar scenario. To measure the difficulty in guessing, learners were asked to rate degree of difficulty on a Likert-scale questionnaire. To assess lexical inferencing, learners were required to write or translate the meaning of each target word in the first language (English). Results revealed that the target words from the more familiar story were easier to guess. For success in lexical inferencing, the same effect occurred, that is, there were more correct inferences from the more familiar story compared to the less familiar one.

Based upon the limited number of studies on the effect of content familiarity on incidental vocabulary acquisition, the present study seeks to expand the effect of this learner-based factor on this area by investigating how learners content background knowledge of authentic news texts affects their performance on incidental vocabulary acquisition while reading.

CHAPTER 3

RESEARCH METHODOLOGY

This study investigated the effect of content familiarity on incidental vocabulary acquisition through reading English newspapers. The subjects were second year undergraduate students who studied English as their major during the 1st semester of 2011 academic year at Thaksin University, Songkla campus. The purposes of the study were: 1) to find out if the degree of familiarity contributed significantly to gain of new vocabulary encountered in the texts; 2) to investigate if the impact of content familiarity would be observed over time; and 3) to examine the subjects' attitudes towards learning words incidentally through reading English texts and newspapers. This chapter presents the research methodology of the study. It includes information about the subjects, research instruments, research procedure, and data analysis.

3.1 Subjects of the Study

A total of 25 second year English major students at Thaksin University, Songkla campus in the academic year of 2011 participated in this study. They were from the Faculty of Humanities and Social Sciences. Twenty of them were female, and 5 male.

3.2 Research Instruments

There were five research instruments used in the study: a content familiarity questionnaire, 15 reading passages, a vocabulary test used as a pre- and post-test, a vocabulary retention test, and an attitude questionnaire toward learning words through reading.

3.2.1 Content Familiarity Questionnaire

This study was designed to investigate the impact of background knowledge or content familiarity on the acquisition of unknown vocabulary during reading. In order to assess the subjects' background knowledge of the 15 pieces of news, the content familiarity questionnaire adapted from that of Chiramanee (1992) was used. The subjects were asked to determine their familiarity with the content of each text on a scale from 1 (unfamiliar - somewhat unfamiliar) to 2 (familiar - somewhat familiar). The adapted questionnaire was presented to the subjects in Thai (see Appendix E). The results obtained from the questionnaire were used to categorize the passages into either familiar or unfamiliar.

3.2.2 Reading Passages

Fifteen news texts selected from *the Bangkok Post* dated from April to September, 2011 served as the reading materials for this study to examine the effects of content familiarity on incidental acquisition of unknown vocabulary during reading (see Appendix A). The researcher chose these texts primarily on the basis of the topics, difficulty, length, and degree of familiarity to the subjects. An experienced English teacher commented on whether the texts were appropriate in terms of level of difficulty and vocabulary contained in the texts to make sure that the subjects knew a sufficient percentage of the words in the texts to be able to guess word meaning successfully. According to the teacher, the texts were considered to match the comprehension ability of the second year English major students.

Of the 15 pieces of texts, 12 pieces of news were domestic news and 3 were international news. The topics could be classified into politics, local events, natural disasters, and human rights. All texts were controlled in terms of length, so they were of similar text length (approximately 300-350 words each).

Since the study aimed to see the effects of familiar and unfamiliar contents on the numbers of vocabulary acquisition, the degree of familiarity of the texts was taken into account. To be able to compare the effects of familiarity, the texts selected were both familiar and unfamiliar to the subjects. In order to find out if the

texts would be classified as familiar or unfamiliar, the subjects were asked to determine the degree of familiarity of each text on content familiarity questionnaire after reading it. Table 3.1 shows the subjects' overall rating on content familiarity questionnaire by text.

As shown in Table 3.1, of the 15 texts, seven were determined as familiar by the majority of the subjects and eight as unfamiliar. The 7 reading texts the majority of the subjects determined as familiar to them were *First road death of Songkran reported*, *Plan aims to end HIV in children by 2015*, *Abhisit steps down as Democrat leader*, *Nan flood waters start to recede*, *Pheu Thai wins 101 seats in NE*, *Killer floods poised to hit Central zone*, and *Hurricane Irene slams into North Carolina*. The 8 texts determined as unfamiliar to most subjects included *Vietnam vitriol gathers pace*, *ID cards on the way for 268 rootless people*, *Owner admits his men tried to drive out squatters*, *South teachers tell world body of safety fears*, *State officials altered Wang Nam Khieo land records*, *Strauss-Kahn back home*, *Southerners press govt for special zone*, and *Tackling street racers at source*.

Table 3.1 Overall Rating on Content Familiarity by Text

Text	Title	Familiar Text		Unfamiliar Text		Length (words)
		No. of Ss	%	No. of Ss	%	
1	First road death of Songkran reported	16	64.0	9	36.0	339
2	Plan aims to end HIV in children by 2015	14	56.0	11	44.0	313
3	Vietnam vitriol gathers pace	9	36.0	16	64.0	301
4	ID cards on the way for 268 rootless people	8	32.0	17	68.0	318
5	Abhisit steps down as Democrat leader	20	80.0	5	20.0	338
6	Owner admits his men tried to drive out squatters	3	12.0	22	88.0	304
7	Nan flood waters start to recede	17	68.0	8	32.0	312
8	Pheu Thai wins 101 seats in NE	20	80.0	5	20.0	328
9	South teachers tell world body of safety fears	9	36.0	16	64.0	311
10	Killer floods poised to hit Central zone	16	64.0	9	36.0	303
11	State officials altered Wang Nam Khieo land records	8	32.0	17	68.0	300
12	Strauss-Kahn back home	5	20.0	20	80.0	322
13	Southerners press govt for special zone	9	36.0	16	64.0	301
14	Hurricane Irene slams into North Carolina	13	52.0	12	48.0	321
15	Tackling street racers at source	10	40.0	15	60.0	318

3.2.3 Vocabulary Test

The unknown words to be tested and acquired in the study were chosen from the 15 texts, 10 words per text (see Appendix B). Thus, the total number of the target words was 150. The researcher and an experienced EFL teacher selected these words on the basis of difficulty, potential of being unknown to the second year English majors, and possibility of being learned by the research subjects as a result of content familiarity. All target words to be tested were explicitly underlined in the texts. The 150 target words were all content words consisting of 77 verbs, 59 nouns, 12 adjectives, and 2 adverbs. In the study, the 150 target words were separately tested text by text and at the different data collection sessions, that is, 10 words per each session.

The vocabulary test was used twice, before and after the subjects read each text, as a pre- and post-test.

3.2.3.1 Vocabulary Pre-Test

The vocabulary pre-test was used as a measure of the subjects' prior knowledge of the target words. Because the target words from each text were separately tested, 10 words per each, there were 15 sub pre-tests in the study. As a pre-test, the subjects were presented with a list of 10 target words that appeared in the text out of context, and asked to supply the meaning of each word in Thai prior to reading the text (see Appendix C). The subjects' scores on the test were used to assess whether they knew the words or not before reading a text in which the 10 target words appeared and whether they were able to guess words previously unknown after reading that particular text.

3.2.3.2 Vocabulary Post-Test

There were 15 sub-parts of vocabulary post-test in this study. The purpose of the test was to assess the subjects' knowledge of the unknown target words immediately after reading each text. Each sub-part of the post-test was individualized

for each subject since each of the subjects knew a different number of the pre-test target words. So each sub-part (in the post-test) was tailored to present each subject with one text and a particular number of the target words that they did not know in the pre-test. In each sub-test, there were questions asking the subjects' vocabulary learning strategies and additionally learned words. Regarding vocabulary learning strategies, the subjects were asked to indicate how they learned the meaning of the previously unknown words. Although there are a large number of vocabulary learning strategies, only four of them were focused in this study, namely, using content knowledge, using context, using word morphology, and using cognate (see Appendix C). This was because the study examined inferencing or guessing a word's meaning while reading, and these strategies are commonly used in inferencing words' meaning (Fraser, 1999). In terms of words additionally learned while reading, the subjects needed to write any other words they learned while reading in addition to the target words.

3.2.4 Vocabulary Retention Test

The vocabulary retention test was designed to assess the subjects' retention of the acquired target words. Each subject's newly acquired words from the post-test formed the vocabulary retention test. So, the vocabulary retention test varied among the subjects and the subjects needed to supply its meaning in Thai. The test was conducted 2 weeks after the subjects read the text (see Appendix D).

3.2.5 Attitude Questionnaire towards Learning Words through Reading

A five-point Likert scale from "strongly agree" to "strongly disagree" questionnaire was used to determine the subjects' attitudes towards learning words through reading English texts and to find out if they had positive or negative attitudes towards learning words through reading general English texts and news. The questionnaire consisted of two parts, totaling 29 items (see Appendix E). Part 1 included questions asking for the subjects' attitudes towards learning words

incidentally through reading general English texts and part 2 their attitudes towards learning words incidentally through reading English news in newspapers. The questionnaire was distributed to the subjects at the end of the data collection of the study, that is, after 15 sessions, 15 weeks in total. In the study, the Thai version was used to make sure that the intended meaning could be conveyed.

Table 3.2: Summary of Research Instruments and Purposes

Instruments	Purposes
1. Content Familiarity Questionnaire	To obtain information on subjects' degree of familiarity with the content of 15 pieces of news.
2. 15 Pieces of News	To be used as materials for the subjects to learn the target words.
3. Vocabulary Test	
− Pre-Test	To obtain data on subjects' prior knowledge of the 150 target words.
− post-Test	To obtain data on subjects' vocabulary knowledge after reading the texts, their vocabulary learning strategies, and other words they learned while reading.
4. Vocabulary Retention Test	To obtain information on subjects' retention of acquired words two weeks after reading each text.
5. Attitude Questionnaire towards Learning Words through Reading	To obtain data on subjects' attitudes towards learning words through reading general English texts and English newspapers at the end of the study.

3.3 Research Procedure

The study was undertaken during the first semester i.e., June-October 2011. A week before the first data collection session, the researcher informed the subjects of the purpose of the study, that is, to test the effect of content familiarity on the acquisition of unfamiliar vocabulary during reading English news texts. The subjects were told that the study would last 15 weeks. In each week, there would be a data collection session which would take about 50-60 minutes.

A week later, data collection took place during 12.00 – 13.00 at a classroom at Thaksin University, Songkla campus under the supervision of the researcher. Data was collected in 15 separate sessions in the study. In each session, the same procedure was followed for the next 14 weeks, and the research procedure consisted of the following three phases: (1) reading phase, (2) vocabulary retention test phase, and (3) the questionnaire response phase.

Phase 1: Reading Phase

This phase continued for 15 weeks. In each week, four research instruments were used, namely, the vocabulary pre-test, a piece of news, the vocabulary post-test, and content familiarity questionnaire. In this phase, the subjects completed vocabulary pre-test. Then they were asked to read a short English news text containing the 10 target words for 20 minutes. Immediately after reading, they did a vocabulary post-test which was used to assess their vocabulary gain, vocabulary learning strategies and gains of other words, followed by topic familiarity questionnaire. The subjects spent approximately 1 hour completing all instruments used in this phase.

Phase 2: Vocabulary Retention Test Phase

This phase was conducted two weeks after the subjects read each of the 15 texts. So, it was carried on for 15 weeks as the reading phase. In this phase, the subjects were given a vocabulary retention test to indicate their retention of the

vocabulary they gained from reading each text. They spent approximately 10 minutes completing each test.

Phase 3: The Questionnaire Response Phase

At the end of the data collection, the subjects were required to respond to the attitudes questionnaire concerning learning words through reading English texts. The subjects spent approximately 15 minutes responding to the questionnaire.

Table 3.3: Summary of the Data Collection Procedure

Data Collection	Time
1. Reading Phase - Pre-Vocabulary Test - A Reading Passage - Post- Vocabulary Test - Content Familiarity Questionnaire	**Week 1-15** − reading a text containing 10 target words and completing the three instruments within a week (50 minutes per week)
2. Vocabulary Retention Test Phase - Vocabulary Retention Test	**Week 3-17** − the retention of acquired words from reading text 1-15 tested at week 3-17 respectively (10 minutes each week)
3. The Questionnaire Response Phase - Attitudes Questionnaire towards Learning Words Incidentally through Reading	**Week 15** (15 minutes)

3.4 Data Analysis

To answer the three research questions, the following statistics were employed in analyzing and computing the data of the study.

Research question 1:   Does the degree of familiarity contribute significantly to gain of new vocabulary encountered in the texts?

To answer the first research question, the pre-test and the post-tests were scored. For the pre- test, each target word on each piece of news to which the subjects gave a correct meaning received one point. With a total of 15 pieces, the maximum possible score for each subject was 150, which indicated the number of unknown target words before each subject reading the news texts. The post- tests were scored by using the same method used for the pre-tests, that is, a point was given for each correct meaning. The maximum score for each subject was 150. Mean scores on the post-tests were calculated to identify the number of acquired words after reading. Independent sample t-test was then utilized to determine the significant differences between mean scores on familiar and unfamiliar contents and to see if content familiarity contributed to vocabulary acquisition.

Research question 2:   Is the impact of content familiarity still observed over time?

To answer the second research question, the vocabulary retention tests were scored. A point was awarded for each correct meaning. Mean scores on vocabulary retention test were calculated to determine the extent to which participants retained their acquired words 2 weeks after reading. Independent sample t-test was then employed to consider the significant differences between mean scores on familiar and unfamiliar contents and to see if content familiarity had an impact on vocabulary retention.

Research question 3:   What are learners' attitudes towards learning words incidentally through reading?

        To find out the answer to the third research question, the data from the five-point rating scale were calculated for means and standard deviations. The ranges of the mean scores for each level were employed for interpreting the level of agreement presented as follows:

4.21 – 5.00	=	Strongly agree
3.41 – 4.20	=	Agree
2.61 – 3.40	=	Moderately agree
1.81 – 2.60	=	Disagree
1.00 – 1.80	=	Strongly disagree

CHAPTER 4

FINDINGS AND DISCUSSION

This chapter reports and discusses the outcome of the data analysis and presents the answers to the study's research questions. The results and discussion are ordered according to the three research questions. The main findings are presented below.

4.1 Vocabulary Acquisition

4.2 Vocabulary Retention

4.3 Vocabulary Acquisition and Retention in terms of Word Classes

4.4 Additional Vocabulary Acquisition: Other Contribution of Content Familiarity

4.5 Vocabulary Learning Strategies

4.6 Students' Attitudes towards Learning Words Incidentally through Reading

4.7 Discussion

4.1 Vocabulary Acquisition

The first research question concerns the effect of content familiarity on subjects' ability in acquiring the target words incidentally after reading the texts.

Research question 1: *Does the degree of familiarity contribute significantly to gain of new vocabulary encountered in the text?*

To answer the first research question, the 25 subjects' scores on the pre- and post-vocabulary test on 15 texts with varying degrees of content familiarity were calculated to identify the number of acquired words or gain after reading the texts. The results will be presented in the 2 following sections.

4.1.1 Incidental Vocabulary Acquisition Regardless of Content Familiarity Effect

In the study, there were 15 data collection sessions as the 150 target words chosen from 15 texts, 10 per text, were tested on different occasions. In each session, the pre-test of the 10 target words was given, followed by the subjects reading a piece of news and doing a post-test of the same list of 10 target words. In order to find out the extent the subjects acquired words after reading the texts regardless of level of content familiarity, the scores on the pre-and post vocabulary test were calculated for each text and total texts to see the numbers of words previously unknown and those learned after reading. The scores on the acquired words (gain) were then analyzed to compare the scores on the pre-and post vocabulary test. The means of the pre- and post- test in each reading text and the total of the 15 reading texts were then compared using paired sample t-test to determine if the 25 subjects' knowledge of the target words was significantly different. The results are presented in Table 4.1.

Table 4.1: Incidental Vocabulary Acquisition Regardless of Content Familiarity Effect

Reading Texts	Target Words	Pre-Test		Post-Test		Dif. (Gain)	t
		Unknown Target Words	Known Target Words	Unknown Target Words	Known Target Words		
		Mean	Mean	Mean	Mean	Mean	
Text 1	10	8.84	1.16	7.92	2.08	0.92	5.06**
Text 2	10	9.08	0.92	8.16	1.84	0.92	5.06**
Text 3	10	7.28	2.72	6.04	3.96	1.24	5.68**
Text 4	10	7.32	2.68	6.80	3.20	0.52	3.64**
Text 5	10	9.12	0.88	8.56	1.44	0.56	3.41**
Text 6	10	8.16	1.84	7.28	2.72	0.88	4.99**
Text 7	10	8.40	1.60	7.64	2.36	0.76	4.32**
Text 8	10	8.36	1.64	6.92	3.08	1.44	6.22**
Text 9	10	9.24	0.76	6.84	3.16	2.40	11.53**
Text 10	10	7.60	2.40	3.92	6.08	3.68	17.21**
Text 11	10	9.08	0.92	8.72	1.28	0.36	3.67**
Text 12	10	9.24	0.76	8.40	1.60	0.84	5.25**
Text 13	10	9.12	0.88	7.68	2.32	1.44	7.18**
Text 14	10	9.68	0.32	8.24	1.76	1.44	7.49**
Text 15	10	9.20	0.80	6.84	3.16	2.36	8.36**
Total	**150**	**129.72**	**20.28**	**109.96**	**40.04**	**19.76**	**22.46**

** Significant at 0.01 level

According to the data in Table 4.1, the means of vocabulary pre- and post-test in the total of the 15 reading texts were significantly different at the 0.01 level (t=22.46, p< 0.01). At the time of the pre-test, i.e. before the subjects read the 15 texts, they knew 20.28 of the meaning of the 150 tested words, while on the post-test

(after reading the 15 texts), they knew 40.04 words, showing a noticeably higher gain in vocabulary meaning knowledge. The means increased from 20.28 to 40.04 after reading. This indicates that the subjects' target words' knowledge improved significantly after reading the texts and that reading can develop their vocabulary knowledge.

When considering each reading text, it is also found that the means of the pre- and post-test in all reading texts were significantly different, that is, the means of the post-test were higher than those of the pre-test. For example, in reading Text 1, the subjects knew the meaning of 1.16 words at the time of the pre-test, while on the post-test, they knew 2.08 words. In Text 10, the subjects showed the highest gain in vocabulary knowledge. They knew the meaning of 2.40 tested words at the time of the pre-test, while on the post-test, they knew 6.08 words. In reading Text 11, by contrast, the subjects' vocabulary knowledge improved least. The means of the pre- and post- test on this reading text are 0.92 and 1.28 respectively. The means increased by 0.36. The inconsistency in the improvement of vocabulary knowledge in each reading text found in the study might be influenced by the effect of content familiarity which will be shown next in 4.1.2.

4.1.2 Incidental Vocabulary Acquisition from Reading Familiar and Unfamiliar Texts

To obtain the information about the subjects' levels of content familiarity with the 15 reading texts, the subjects were asked to determine their familiarity with the content on a content familiarity questionnaire after they read the texts. The results from the questionnaire' responses reveal that the 25 subjects had different levels of familiarity with the 15 texts as shown in Table 4.2. To investigate the subjects' vocabulary acquisition with respect to their levels of content familiarity with the texts, the scores obtained on vocabulary gain from familiar and unfamiliar texts were calculated. The means on familiar and unfamiliar texts of each reading text were then analyzed and compared using independent sample t-test to see if the content familiarity contributed significantly to the acquisition of the target words in each reading text. The results are presented in Table 4.2 and 4.3.

Table 4.2: Incidental Vocabulary Acquisition from Reading Familiar and Unfamiliar Texts

Reading Texts	Familiar Text				Unfamiliar Text			
	No. of Subjects	Pre-Test	Post-Test	Gain	No. of Subjects	Pre-Test	Post-Test	Gain
		Mean	Mean	Mean		Mean	Mean	Mean
Text 1	16	1.00	2.13	1.13	9	1.44	2.00	0.56
Text 2	14	0.93	1.86	0.93	11	0.91	1.82	0.91
Text 3	9	2.78	4.44	1.67	16	2.69	3.69	1.00
Text 4	8	3.38	3.75	0.38	17	2.35	2.94	0.59
Text 5	20	0.95	1.65	0.70	5	0.60	0.60	0.00
Text 6	3	1.67	3.00	1.33	22	1.86	2.68	0.82
Text 7	17	1.71	2.53	0.82	8	1.38	2.00	0.63
Text 8	20	1.65	2.95	1.30	5	1.60	3.60	2.00
Text 9	9	0.67	3.44	2.78	16	0.81	3.00	2.19
Text 10	16	2.25	6.38	4.13	9	2.67	5.56	2.89
Text 11	8	0.63	1.00	0.38	17	1.06	1.41	0.35
Text 12	5	1.00	2.00	1.00	20	0.70	1.50	0.80
Text 13	9	0.44	2.44	2.00	16	1.13	2.25	1.13
Text 14	13	0.54	2.00	1.46	12	0.08	1.50	1.42
Text 15	10	0.70	3.20	2.50	15	0.87	3.13	2.27
Total	-	20.28	42.77	**22.49**	-	20.15	37.68	**17.53**

In Table 4.2, the subjects determined their familiarity with the content of each text differently. For example, in reading text 1, among 25 subjects, 16 determined the content of the text as familiar, while 9 as unfamiliar. In reading text 2, 14 subjects were familiar with the text content, while 11 were not familiar with it. The 16 subjects determining the content of the reading Text 1 as familiar knew the meaning of only one of the 10 target words before they read the text (pre-test), while

after reading (post-test), they knew the meaning of 2.13 words. The 16 subjects'
vocabulary knowledge increased by 1.13 words which was the number of words they
acquired after reading the text. At the time of the pre-test, the 9 subjects unfamiliar
with the reading Text 1 knew the meaning of 1.44 words, while on the post-test, they
knew 2.00 words. They acquired the meaning of 0.56 words after they read the text.
In the total of 15 reading texts, the means of 22.49 were obtained from the subjects
determining the content of the 15 texts as familiar to them, while 17. 53 were from the
subjects whose responses on the questionnaire were unfamiliar to the 15 texts. The
total means on familiar texts when compared with the total means on unfamiliar texts
were noticeably different, that is, they were higher. However, it cannot be concluded
here that the subjects could acquire more words from the familiar texts than from the
unfamiliar texts as the effect of content familiarity on word acquisition was found to
be significantly different only on 2 texts as shown in Table 4.3.

Table 4.3: Differences between Mean Scores on Vocabulary Acquisition on Familiar and Unfamiliar Texts

Reading Texts	Familiar Text	Unfamiliar Text	Difference	t
	Mean	Mean	Mean	
Text 1	1.13	0.56	0.57	1.55
Text 2	0.93	0.91	0.02	0.05
Text 3	1.67	1.00	0.67	1.25**
Text 4	0.38	0.59	0.21	0.69
Text 5	0.70	0.00	0.70	3.62**
Text 6	1.33	0.82	0.52	0.95
Text 7	0.82	0.63	0.20	0.52
Text 8	1.30	2.00	0.70	1.22
Text 9	2.78	2.19	0.59	1.39
Text 10	4.13	2.89	1.24	3.30
Text 11	0.38	0.35	0.02	0.10
Text 12	1.00	0.80	0.20	0.49
Text 13	2.00	1.13	0.88	2.27
Text 14	1.46	1.42	0.04	0.11
Text 15	2.50	2.27	0.23	0.40

** Significant at 0.01 level

According to the data in Table 4.3, a significant effect of content familiar on words acquisition was found only in Text 3 and Text 5. In Text 3, the subjects familiar with the content of the text knew the meaning of 1.67 words after they read the text, while those unfamiliar with the text knew the meaning of 1.00 words. In Text 5, the meaning of 0.70 words were acquired by the subjects familiar with the content of the text, but the subjects unfamiliar with the content of the text did not acquire the meaning of any words after they read the text. Differences between the means of familiar and unfamiliar texts in Text 3 and 5 are 0.67 and 0.70 respectively.

In these 2 texts, the means on familiar texts when compared with the means on unfamiliar texts were significantly higher (t=1.25 and 3.62 respectively, p < 0.01). This indicates that after reading Text 3 and 5, the subjects who were familiar with the content of the texts acquired more words than the subjects who were unfamiliar with the texts. Thus, content familiarity contributes significantly to the acquisition of words in Text 3 and 5.

In sum, results from the statistical analyses regarding vocabulary acquisition during reading can be summarized as follows: First, regardless of the effect of content familiarity, the 25 subjects' vocabulary knowledge improved significantly after reading the 15 texts. They acquired the meaning of 19.76 words from among 129.72 tested words, they knew the meaning of 20.28 words before the study. Second, in terms of incidental vocabulary acquisition from familiar and unfamiliar texts, the significant contribution of content familiarity to the acquisition of the target words was found in two texts, 3 and 5. The second findings partially show the answer to the first research question investigating the effect of content familiarity on vocabulary acquisition while reading. Thus, the findings of the first research question partially confirm the findings of previous research (e.g. Pulido, 2004a) on the effect of background knowledge on incidental vocabulary acquisition while reading.

4.2 Vocabulary Retention

The second research question concerns the effect of content familiarity on students' ability in retaining the acquired words two weeks after reading the texts.

Research question 2:   *Is the impact of content familiarity stilled observed over time?*

To answer the second research question, the scores on the vocabulary retention test were calculated to find out the numbers of words the 25 subjects retained two weeks after reading the 15 texts. The results will be presented in 2 sections.

4.2.1 Vocabulary Retention Regardless of Content Familiarity Effect

To measure the subjects' long term retention of the words they acquired, they were given vocabulary retention test two weeks after reading each text. To find out the extent the subjects retained words 2 weeks after reading the 15 texts regardless of level of content familiarity, mean scores on the vocabulary post-test and vocabulary retention test were analyzed. Paired sample t-test was then employed. The results were presented as follows.

Table 4.4: Comparisons of the Mean Scores on Vocabulary Post-Test and Retention Test

Reading Texts	Post-Test	Retention Test	Difference	t
	Mean	Mean	Mean	
Text 1	0.92	0.60	0.32	2.32*
Text 2	0.92	0.40	0.52	3.38**
Text 3	1.24	0.80	0.44	3.38**
Text 4	0.52	0.36	0.16	1.69
Text 5	0.56	0.32	0.24	2.01
Text 6	0.88	0.64	0.24	2.30*
Text 7	0.76	0.20	0.56	3.41**
Text 8	1.44	0.44	1.00	4.47**
Text 9	2.40	0.92	1.48	5.86**
Text 10	3.68	2.08	1.60	6.72**
Text 11	0.36	0.04	0.32	3.36**
Text 12	0.84	0.44	0.40	3.46**
Text 13	1.44	0.76	0.68	3.99**
Text 14	1.44	0.68	0.76	5.73**
Text 15	2.36	0.68	1.68	7.34**
Total	**19.76**	**9.36**	**10.40**	**11.04****

** Significant at 0.01 level   * Significant at 0.05 level

In Table 4.4, the means on the post-test and retention test in all reading texts, except reading Text 4 and 5, were significantly different. In addition, the means on the retention test were significantly lower than that of the post-test. For example, in Text 1, differences between the means on the post-test and retention test were 0.32 (t=2.32, p < 0.05). The subjects lost the meaning of 0.32 words two weeks after reading the text. Of all the words they acquired in Text 1 (Mean = 0.92), they could remember the meaning of 0.60 words. In the total of 15 texts, differences between the total means of the post-test and the total means of the retention test were 10.40. The post-test and retention test means scores were significantly different at the 0.01 level (t=11.04, p< 0.01). At the time of the post-test (after reading the texts), the subjects acquired the meaning of 19.76 unknown target words, however, two weeks later, they could retain less than half of the words they knew before (Mean = 9.36). The means significantly decreased from 19.76 to 9.36. This indicates that over time the subjects' ability in retaining the acquired words decreased as illustrated by a significant decrease in scores. That is, the subjects remembered fewer words 2 weeks after the study.

4.2.2 Effect of Content Familiarity on Vocabulary Retention

In order to find out if content familiarity had an impact on vocabulary retention, the scores on vocabulary acquisition in the post-test and retention test were analyzed for each reading text. Independent sample t-test was then employed. The results are presented in Table 4.5 and 4.6 as follows.

Table 4.5: Effect of Content Familiarity on Vocabulary Retention

Reading Texts	Familiar Text			Unfamiliar Text		
	No. of Subjects	Post-Test	Retention Test	No. of Subjects	Post-Test	Retention Test
Text 1	16	1.13	0.81	9	0.56	0.22
Text 2	14	0.93	0.50	11	0.91	0.27
Text 3	9	1.67	1.00	16	1.00	0.69
Text 4	8	0.38	0.25	17	0.59	0.41
Text 5	20	0.70	0.40	5	0.00	0.00
Text 6	3	1.33	0.33	22	0.82	0.68
Text 7	17	0.82	0.18	8	0.63	0.25
Text 8	20	1.30	0.35	5	2.00	0.80
Text 9	9	2.78	1.00	16	2.19	0.88
Text 10	16	4.13	2.38	9	2.89	1.56
Text 11	8	0.38	0.00	17	0.35	0.06
Text 12	5	1.00	0.60	20	0.80	0.40
Text 13	9	2.00	1.00	16	1.13	0.63
Text 14	13	1.46	0.69	12	1.42	0.67
Text 15	10	2.50	1.10	15	2.27	0.40
Total	**-**	**22.49**	**10.59**	**-**	**17.53**	**7.91**

With respect to the data in Table 4.5, among the total of 22.49 words the subjects familiar with the content of the 15 texts acquired immediately after reading, the meaning of 10.59 words could be retained two weeks later. Of the total of 17.53 words the subjects unfamiliar with the content acquired at the time of post-test, the meaning of 7.91 words could be remembered at the time of retention test (two weeks after the study). Obviously, the means on vocabulary retention in the total of 15 reading texts on familiar content and unfamiliar content were different, that is, the means on familiar content were higher than that of unfamiliar content; however, the

effect of content familiarity on vocabulary retention could be found to be significantly different only in reading Text 1, 5 and 15 as shown in Table 4.6.

Table 4.6: Differences between Mean Scores on Vocabulary Retention on Familiar and Unfamiliar Texts

Reading Texts	Familiar Content	Unfamiliar Content	Difference	t
	Mean	Mean	Mean	
Text 1	0.81	0.22	0.59	2.31*
Text 2	0.50	0.27	0.23	0.98
Text 3	1.00	0.69	0.31	0.92
Text 4	0.25	0.41	0.16	0.58
Text 5	0.40	0.00	0.40	2.62**
Text 6	0.33	0.68	0.35	0.74
Text 7	0.18	0.25	0.07	.41
Text 8	0.35	0.80	0.45	1.59
Text 9	1.00	0.88	0.13	.36
Text 10	2.38	1.56	0.82	1.53
Text 11	0.00	0.06	0.06	.68
Text 12	0.60	0.40	0.20	.68
Text 13	1.00	0.63	0.38	1.09
Text 14	0.69	0.67	0.03	.08
Text 15	1.10	0.40	0.70	1.82*

** Significant at 0.01 level   * Significant at 0.05 level

According to the data presented in Table 4.6, a significant effect of content familiarity on vocabulary retention was found only in Texts 1, 5, and 15. Differences between the retention means on familiar and unfamiliar texts in these texts are 0.59, 0.40, and 0.70 respectively. The retention means on familiar and

unfamiliar texts in Texts 1 and 15 were significantly different at 0.05 level (t=2.31 and 1.82 respectively, p < 0.05). In Text 5, the retention means on both familiar and familiar texts were found to be significantly different at 0.01 level (t=2.62, p < 0.01). The means on familiar text in Texts 1, 5 and 15 were significantly higher when compared with the means on unfamiliar content. This indicates that two weeks after the study, the subjects could retain more words from familiar text than from unfamiliar text in Texts 1, 5 and 15 and familiarity with the content of these texts contributes significantly to the retention of acquired words.

In brief, results from the statistical analyses regarding vocabulary retention two weeks after the study can be summarized as follows: First, regardless of the effect of content familiarity, over time (two weeks) the 25 subjects' ability in retaining the meaning of acquired words significantly decayed. They remembered the meaning of 9. 36 words which was less than half of the words they learned immediately after reading (Mean = 19.76). Second, when the effect of content familiarity on vocabulary retention was taken into account, it is found that the effect of this factor contributed significantly to the retention of words the subjects familiar with the content of Texts 1, 5 and 15 acquired from reading these texts.

4.3 Vocabulary Acquisition and Retention in terms of Word Classes

In the study, the total number of target words was 150 (77 verbs, 59 nouns, 12 adjectives, and 2 adverbs). However, at the time of the pre-test i.e. before the 25 subjects read each of the texts, the subjects indicated knowing the meaning of 20.28 words out of 150. So, the actual unknown target words to the subjects to be tested were 129.72 words. To determine the word class of words acquired and retained, the actual target words were classified according to word classes, and the percentages and means obtained on vocabulary acquisition in the post-test and vocabulary retention were calculated. The results are presented below.

Table 4.7: Vocabulary Acquisition and Retention Categorized by Four Word Classes

Classes of Words	Class of Target Words		Class of Words Acquired		Class of Words Retained	
	Mean	**%**	**Mean**	**%**	**Mean**	**%**
Nouns	47.52	36.63	9.28	19.53	4.76	51.29
Verbs	69.44	53.53	8.64	12.44	3.60	41.67
Adjectives	11.04	8.51	1.64	14.86	0.84	51.22
Adverbs	1.72	1.33	0.20	11.63	0.16	80.00
Total	**129.72**	**100.00**	**19.76**	**15.23**	**9.36**	**47.37**

As shown in Table 4.7, the actual target words (129.72) were categorized into four classes: nouns (47.52), adjectives (11.04), verbs (69.44) and adverbs (1.72). Over half of the target words were verb category (53.53%) and adverb category contained least words accounting for 1.33% of the tested words.

In Table 4.7, it is obvious that the subjects overall acquired meanings of 15.23% of the target words (Mean=19.76). In terms of word classes, the subjects acquired nouns at the highest rate, 19.53% or 9.28 of the total of 47.52 and adjectives at a rate of 14.86% (Mean=1.64). By contrast, verbs and adverbs were slightly harder for the subjects to acquire. The subjects acquired adverbs least at a rate of 11.63% (Mean=0.20), and verbs were acquired at a rate of 12.44% (Mean=8.64).

In terms of the class of words retained, the subjects couldn't remember the meanings of all the words they acquired. Of the 19.76 acquired words, they could retain the meaning of 9.36 words, or 47.37% of the total acquired words. When considering each class of words, it appears that the subjects could retain adverbs best accounting for 80% of the adverbs they acquired (Mean=0.16), followed by nouns (51.29%, Mean=4.76), adjectives (51.22%, Mean=0.84), and verbs (41.67%, Mean=3.60) respectively.

4.4 Additional Vocabulary Acquisition: Other Contribution of Content Familiarity

To find out the number of words the subjects acquired in addition to the target words while reading the 15 texts, the subjects were instructed to indicate words other than the target words they knew the meaning of after reading the texts. The mean scores on the additionally acquired words from reading familiar and unfamiliar texts were then analyzed and compared using independent sample t-test in order to see if the content familiarity contributed to the number of words acquired while reading in addition to the target words. The results are presented in Table 4.8 and 4.9.

Table 4.8: Additional Vocabulary Acquisition from Reading Familiar and Unfamiliar Texts

Reading Texts	Overall additional learned words (No. of subjects=25)		Familiar Text			Unfamiliar Text		
	No. of words	Mean	No. of Subjects	No. of words	Mean	No. of Subjects	No. of words	Mean
Text 1	27	1.08	16	17	1.06	9	10	1.11
Text 2	27	1.08	14	10	0.71	11	17	1.55
Text 3	14	0.56	9	4	0.44	16	10	0.63
Text 4	2	0.08	8	1	0.13	17	1	0.06
Text 5	11	0.44	20	9	0.45	5	2	0.40
Text 6	6	0.24	3	2	0.67	22	4	0.18
Text 7	11	0.44	17	11	0.65	8	0	0.00
Text 8	25	1.00	20	21	1.05	5	4	0.80
Text 9	15	0.60	9	7	0.78	16	8	0.50
Text 10	36	1.44	16	24	1.50	9	12	1.33
Text 11	11	0.44	8	3	0.38	17	8	0.47
Text 12	10	0.4	5	0	0.00	20	10	0.50
Text 13	11	0.44	9	7	0.78	16	4	0.25
Text 14	7	0.28	13	6	0.46	12	1	0.08
Text 15	10	0.40	10	5	0.50	15	5	0.33
Total	**223**	**8.92**	**-**	**127**	**9.56**	**-**	**96**	**8.19**

As shown in Table 4.8, the 25 subjects acquired 223 additional words (Mean=8.92) in addition to the target words. Of all the additionally learned words, 127 words were acquired by the subjects familiar with the 15 texts (Mean=9.56), and 96 from those who were unfamiliar with the texts (Mean=8.19). Overall, the

additional learned words from familiar text were slightly higher than that of unfamiliar text. Nevertheless, a robust impact of content familiarity was obtained only on the text 6, 7, 13 and 14 as shown in Table 4.9.

Table 4.9: Differences between Mean Scores on Additional Learned Words on Familiar and Unfamiliar Texts

Reading Texts	Familiar Text	Unfamiliar Text	Difference	t
	Mean	Mean	Mean	
Text 1	1.06	1.11	0.05	0.08
Text 2	0.71	1.55	0.84	1.27
Text 3	0.44	0.63	0.19	0.56
Text 4	0.13	0.06	0.07	0.55
Text 5	0.45	0.40	0.05	0.17
Text 6	0.67	0.18	0.49	0.72**
Text 7	0.65	0.00	0.65	3.10**
Text 8	1.05	0.80	0.25	0.51
Text 9	0.78	0.50	0.28	0.76
Text 10	1.50	1.33	0.17	0.30
Text 11	0.38	0.47	0.09	0.25
Text 12	0.00	0.50	0.50	2.94
Text 13	0.78	0.25	0.53	1.35*
Text 14	0.46	0.08	0.38	1.64**
Text 15	0.50	0.33	0.17	0.62

** Significant at 0.01 level   * Significant at 0.05 level

In Table 4.9, the effect of content familiarity was obtained on the text 6, 7, 13 and 14. Differences between the means on familiar and unfamiliar texts in these texts are indicated respectively, 0.49, 0.65, 0.53 and 0.38. In Texts 6, 7 and 14

the means on familiar and unfamiliar texts were significantly different at 0.01 level (t=0.72, 3.10 and 1.64 respectively, $p < 0.01$), while in Text 13 at 0.05 level (t=1.35, $p < 0.05$). The means on familiar text in these texts were higher than the means on the unfamiliar one. This indicates that while reading, the subjects who were familiar with the four texts could acquire more words in addition to the target words than those who were not familiar with them.

4.5 Vocabulary Learning Strategies

To study the strategies the subjects used in acquiring the target words during reading and to identify the most frequently used and successful strategies, the results from the response in the vocabulary post-test, which also asked the subjects to indicate how they learned the meaning of the previously unknown words, were calculated for frequencies and percentages. To further determine the relationship between successful guessing and the strategies used, the percentage of success for each strategy type was calculated. Table 4.10 displays the frequencies and percentages of the 4 types of strategies that the subjects employed in learning the target words during reading and also the percentage of success for each strategy type. The strategies consisted of context, content knowledge, word morphology, and cognate.

Table 4.10: Strategies Used and Guessing Success

Strategies	Strategies Used		Guessing Success	
	Frequency	**%**	**No. of correct guess**	**%**
Context	1007	68.97	343	34.06
Content knowledge	274	18.77	97	35.40
Word morphology	173	11.85	52	30.06
Cognate	6	0.41	2	33.33
Total	**1460**	**100**	**494**	**33.84**

In Table 4.10, of all the strategies, the 25 subjects reported using context most frequently to acquire the meaning of the tested words accounting for about two thirds of the strategies used (68.97%, f=1007), followed by content knowledge (18.77%, f=274). They did not use word morphology very widely (11.85%, f=173), and they used cognate least frequently (0.41%, f=6).

Out of the total number of strategies used, about one third (33.84%) were associated with successful guessing. Among the strategies used, content knowledge had the highest percentage of success yielding 97 correct guesses, followed by context (n = 343), cognate (n = 2), and word morphology (n = 52). The percentage of success for these strategies was 35.40%, 34.06%, 33.33%, and 30.06% respectively. This indicates that content knowledge contributed more to successful guessing than others. In addition, even though the subjects overwhelmingly preferred contextual cues over content knowledge, the latter is associated more with success in guessing unknown word meanings.

4.6 Students' Attitudes towards Learning Words Incidentally through Reading

The third research question was raised to investigate the students' attitudes towards learning words incidentally through reading.

Research question 3: *What are learners' attitudes towards learning words incidentally through reading?*

In order to find out the students' attitudes towards learning words while reading, a questionnaire in which the subjects were asked to respond on a five-point Likert scale ranging from "1" (strongly disagree) to "5" (strongly agree) was used after the subjects read each of the 15 news texts. The data obtained from the questionnaire were calculated for means and ranges in order to interpret the level of agreement. The results will be presented in the following sections:

4.6.1 Attitudes towards Learning Words through Reading English Texts

4.6.2 Attitudes towards Learning Words through Reading English Newspapers

4.6.3 Comments and suggestions for learning words through reading English newspapers

4.6.1 Attitudes towards Learning Words through Reading English Texts

The attitudes questionnaire towards learning words incidentally through reading which was distributed to the 25 subjects at the end of the study consisted of two parts, 29 items. The first part was composed of 15 items: items 1-9 asked for the subjects' attitude toward learning words incidentally through reading general English texts, while items 10-15 were about their concerns about it. The subjects' responses from the 15 items are presented in Table 4.11.

Table 4.11: Attitudes towards Learning Words through Reading English Texts

Items	Statements	Mean	S.D.	Level of Agreement
1.	I learn most vocabulary while reading English texts.	3.64	.86	Agree
2.	I like reading English texts to gain new words.	3.84	.94	Agree
3.	Reading English texts is the best and easiest way to develop my vocabulary knowledge.	3.84	.99	Agree
4.	I can learn more vocabulary while reading English texts in which I am interested.	3.76	.83	Agree
5.	While reading familiar English texts, I can learn vocabulary well.	3.84	.75	Agree
6.	I can recall the vocabulary I learn while reading English texts.	3.80	.76	Agree

Items	Statements	Mean	S.D.	Level of Agreement
7.	I think vocabulary learning in context gives me a sense of a word's use and meaning.	4.12	.83	Agree
8.	English teachers should enhance vocabulary learning in context through reading.	4.24	.83	Strongly agree
9.	While reading English texts, I guess unknown word meanings from contextual clues in the texts.	4.36	.64	Strongly agree
10.	Guessing unknown words meanings from the text context can lead to misinterpretation.	3.40	1.00	Moderately agree
11.	Guessing unknown words meanings from the text context takes time and slows down the reading process.	2.92	1.00	Moderately agree
12.	It is difficult to guess the meaning of unknown words when I don't have reading strategies.	3.84	.80	Agree
13.	It is difficult to guess unknown word meanings if I don't know strategies for guessing them.	3.76	.88	Agree
14.	Guessing unknown word meaning is more difficult if I am not familiar with the content of the text	4.12	.83	Agree
15.	Guessing unknown word meanings is difficult if I don't know the meanings of the words surrounding the target word.	3.84	.90	Agree

As shown in Table 4.11, the means of the subjects' responses to questionnaire items 1-9 are between 3.64 and 4.36 ranging from *agree* to *strongly agree* level. The students *strongly agreed* that while reading English texts, they guessed the unknown word meanings from contextual clues in the text (Mean = 4.36),

and that English teachers should enhance vocabulary learning in context through reading (Mean=4.24). The students *agreed* that they learned most vocabulary while reading English texts (Mean = 3.64). They *agreed* that they liked reading English texts in order to gain new words (Mean = 3.84) and reading English texts was the best and easiest way to develop their vocabulary knowledge (Mean = 3.84). They *agreed* that while reading English texts in which they were interested, they could learn more vocabulary (Mean = 3.76). They also *agreed* that while reading familiar English texts, they could acquire vocabulary well (Mean = 3.84). They *agreed* that the vocabulary they learned while reading English texts could be remembered well (Mean = 3.80). They *agreed* that vocabulary learning in context gave them a sense of a word's use and meaning (Mean=4.12).

In terms of subjects' concern about learning words incidentally through reading, the results obtained from the questionnaire items 10-15 show that they worried about it to some extent. The means of their responses to these items are between 2.92-4.12 ranging from *moderately agree* to *agree* level. They were *moderate in agreement* that guessing unknown word meanings from the text context could lead to misinterpretation (Mean = 3.40) and took time and slowed down the reading process (Mean = 2.92). They *agreed* that not knowing reading and guessing strategies made guessing unknown word meanings in the text context more difficult (Mean = 3.84, and 3.76 respectively). They also *agreed* that it was more difficult to guess the meaning of unknown words from the context when they were not familiar with the content of the text (Mean = 4.12) and when they didn't know the meanings of the words surrounding the target word (Mean=3.84).

4.6.2 Attitudes towards Learning Words through Reading English Newspapers

The second part of the questionnaire consisted of 14 items, items 16-25 asking for the subjects' attitudes towards learning words incidentally through reading news in English newspapers, while items 26-29 their concerns about it. The responses to these questionnaire items are presented in Table 4.12.

Table 4.12: Attitudes towards Learning Words through Reading English Newspapers

Items	Statements	Mean	S.D.	Level of Agreement
16.	News in English newspapers arouses my interest and motivates me to read.	4.08	.70	Agree
17.	Reading news in English newspapers helps me learn vocabulary.	4.36	.70	Strongly agree
18.	Reading news in English newspapers enables me to develop my reading skill.	4.32	.70	Strongly agree
19.	Learning words while reading news in English newspaper is useful.	4.56	.70	Strongly agree
20.	It is enjoyable to read news in English newspapers.	3.92	.75	Agree
21.	Guessing unknown word meanings during reading news in English newspapers is not boring but challenging.	3.72	.58	Agree
22.	Guessing the meaning of unknown words while reading news in English newspapers is not difficult.	3.28	.81	Moderately agree
23.	I can retain the meanings of words acquired from reading news in English newspapers well.	3.36	.79	Moderately agree
24.	While reading familiar news, I can guess the meanings of unknown words well.	3.68	1.02	agree
25.	In the future, I will read news in English newspapers to develop my vocabulary knowledge.	4.08	.76	Agree
26.	News in English newspapers uses difficult vocabulary, so I am not motivated to read it.	3.52	.85	Agree

Items	Statements	Mean	S.D.	Level of Agreement
27.	News in English newspapers uses difficult structures, so I am not motivated to read it.	3.64	.81	Agree
28.	It is difficult to guess the meaning of unknown words if I am not familiar with the content of the news.	3.60	1.08	Agree
29.	It is difficult to guess the meaning of target words if I don't know the meaning of the surrounding words in the news.	3.88	.99	Agree

As seen in Table 4.12, the means of the students' responses to the questionnaire items 16-25 asking for their attitudes towards learning words incidentally through reading news in English newspaper are between 3.28-4.56 ranging from *moderately agree* to *strongly agree* level. The students *strongly agreed* that reading news in English newspapers helped them learn vocabulary (Mean=4.36) and at the same time enabled them to develop their reading skill (Mean=4.32). Also, they considered learning words while reading news in English newspapers strongly useful (Mean=4.56). The students *agreed* that news in English newspapers aroused their interest and motivated them to read (Mean=4.08); in addition, it was enjoyable to read it (Mean=3.92). They *agreed* that guessing the meaning of unknown word during reading news in English newspapers was not boring but challenging (Mean=3.72) and that they could guess the meanings of unknown words while reading familiar news well (Mean=3.68). Moreover, they *agreed* that they would read news in English newspapers to develop their vocabulary knowledge in the future (Mean=4.08). They were *moderate in agreement* that it was not difficult to guess the meaning of unknown word meanings while reading news in English newspapers (Mean=3.28) and that words acquired from reading news in English newspapers could be retained well (Mean=3.36).

In terms of subjects' concern about learning words incidentally through reading news in English newspapers, the results obtained from the

questionnaire items 26-29 reveal that they were upset about it to some an extent. The means of their responses to these items are between 3.52-3.88 which is the *agree* level. They *agreed* that news in English newspapers did not motivate them to read because it used difficult vocabulary (Mean=3.52) and structures (Mean=3.64). It was difficult to guess the meanings of unknown word when they were not familiar with the content of the news (Mean=3.60) and the meanings of the surrounding words (Mean=3.88).

4.6.3 Comments and Suggestions for Learning Words through Reading English Newspapers

At the end of the questionnaire, there was an open-ended question asking for subjects' additional comments about how they felt about learning words through reading English newspapers. Six out of 25 subjects responded to the question and their additional comments and suggestions were summarized in the form of a frequency list as shown in Table 4.13.

Table 4.13: Comments and Suggestions for Learning Words through Reading English Newspapers

Comments and Suggestions	No. of Respondents (N = 6)
1. It was useful to learn words during reading English newspapers.	1
2. I learned more vocabulary while reading English newspapers.	2
3. Learning words through reading English newspaper is quite difficult.	1
4. Most vocabulary used in English newspapers was difficult, so it discouraged me from reading the news.	1
5. The target words should be a little bit easier.	1

Three subjects expressed the positive comments on learning words through reading English newspapers. One thought that learning words while reading English newspapers was useful and two stated that while reading English newspapers, they learned more vocabulary. However, a respondent complained that it was quite difficult to learn words while reading English newspapers, another subject mentioned that most vocabulary used in English newspapers was difficult, so it discouraged her/him from reading the news. For the target words, a subject suggested that the words to be tested should be a little bit easier.

In sum, the questionnaire results reveal that although the subjects showed concern about learning words incidentally through reading, generally they showed positive attitude towards it.

4.7 Discussion

The first and second research questions in the present study set out to determine whether or not the level of content familiarity would contribute to gain and retention of new vocabulary encountered within the texts. Research question 3 was raised to find out if the students had positive or negative attitudes toward learning words incidentally through reading. The results reported above, to some extent, illustrate the significant impact of content familiarity on vocabulary gain and retention. In terms of the subjects' attitudes towards learning words incidentally through reading, although the subjects showed concern about this individual vocabulary learning process, generally they had positive attitudes towards it.

This section presents the discussion on the results of the three research questions and the additional findings. The results obtained are discussed as follows:

4.7.1 Contribution of Content Familiarity to Vocabulary Acquisition and Retention

4.7.2   Acquisition and Retention of Word Classes

4.7.3   Additional Vocabulary Acquisition

4.7.4   Vocabulary Learning Strategies

4.7.5   Students' Attitudes towards Learning Words Incidentally through Reading

4.7.1 Contribution of Content Familiarity to Vocabulary Acquisition and Retention

The subjects' vocabulary knowledge after reading the texts was assessed using the post-vocabulary test, while the retention of words acquired from reading the texts was measured via the vocabulary retention test. With the use of independent sample t-test, the results obtained on the two tests reveal in some degree the effects of content familiarity on both vocabulary acquisition and retention. Of the 15 texts, the effects of content familiarity on vocabulary acquisition were obtained only on Text 3, and Text 5 (See Table 4.3, p. 44). In terms of vocabulary retention, it was found that the robust effects of the factor under investigation occurred in Texts 1, 5 and 15 (See Table 4.6, p. 49).

The inconsistent and limited effects of content familiarity on vocabulary gain found in the present study are possibly caused by the following learner-based variables: their second language reading proficiency and sight vocabulary, which were not controlled in the study. Such variables have been found to influence text comprehension and lexical inferencing while reading (Al-Shumaimeri, 2006; Pulido, 2003, 2007). The subjects in the present study were second year university students, enrolled in an English Reading Course for the first time at the time the data was being collected. Therefore, their reading ability and sight vocabulary might be somewhat insufficient to read English news and to acquire word meanings. As pointed out by Just and Carpenter (1992), weak readers tend to lack effective decoding skills and large sight vocabulary, and are more likely to construct and integrate ideas from context with difficulty. Failure in comprehension often breaks down lexical inferencing and integration processes. As a result, the chances for vocabulary development occurring through reading are minimized.

Another learners-based factor that might affect the outcomes is the subjects' incentive, and grades are the greatest incentive for the subjects participating in the study. The present study was not carried out in an intact classroom; the subjects did not receive any incentive for participating. Accordingly, it is possible that lacking incentive for participating in the study plays a negative role in their motivation to attempt the target words and acquire their meanings. Motivation is an important

condition in the development of vocabulary knowledge through reading context. As illustrated by De Bot, Paribakht and Wesche (1997), learning word meanings from context requires sufficient processing of the word as well as specific attention to it.

With inconsistent findings, the present study partially confirms and expands the important role of background knowledge on vocabulary learning through reading. The finding was in some degree in agreement with the study by Pulido (2003) that the level of vocabulary gain obtained on translation recognition measure (a multiple choice test) was superior after reading more familiar stories as opposed to less familiar stories. By contrast, the finding reported in Pulido that no effect of topic familiarity obtained on the measure of retention was not confirmed by the finding of the present study. This is somewhat consistent with that of Pulido (2004a) whose investigation was on the effect of culturally familiarity on incidental vocabulary gain. Her finding demonstrated the significant effect of cultural background knowledge on vocabulary gain: gains were greater after participants read the culturally familiar stories.

4.7.2 Acquisition and Retention of Word Classes

In this study, four classes of words were tested: verbs, nouns, adjectives, and adverbs. The classes of words were found to have a marked effect on ease of acquiring and certain grammatical categories are more difficult to learn than others (Laufer, 1997). Of the 4 classes, the findings show that the subjects acquired nouns best. By contrast, adverbs, adjectives, and verbs were difficult for them to acquire (See Table 4.7, p.51). Nouns seem to be acquired the most easily and this is also claimed by Laufer (1997).

The results of the present study are in agreement with the study conducted by Srimanee (2009) that adjectives and verbs are more difficult to learn than other word classes. Also, the results corresponded to the study by Kweon and Kim (2008) that nouns are easier to understand than verbs because their concepts are more basic. The researchers propose that when learning nouns, it is not important to consider their argument structure information, such as how many and what types of argument (e.g. theme, goal, or location) should be met in the learning process. This

process, nevertheless, is necessary when learning verbs. Accordingly, it makes mapping form and meaning of them difficult. However, the findings do not agree with Na and Nation (1985) who found that verbs were the easiest to guess and nouns were next. They reasoned that these two parts of speech seem to enter into wider ranging relationships than other word classes in context. As a result, there are more clues to help guess their meanings.

Regarding retention of word classes, adverbs could be best remembered, while nouns, adjectives, and verbs were harder to retain (See Table 4.7, p.51). Although the noun category was acquired more easily than other word classes, they were more easily forgotten. This is because in the mental lexicon, nouns incur less cognitive cost of storage (Kweon & Kim, 2008).

4.7.3 Vocabulary Learning Strategies

Four vocabulary learning strategies commonly employed to derive word meanings while reading assessed in this study were content knowledge, context, word morphology, and cognates. When dealing with unfamiliar words, the subjects of the present study made use of cues from the text context most frequently. It was used much more frequently than other three strategies and seemed to be the subjects' favorite method since they used it 68.97% of the time (See Table 4.10, p.55).

This finding confirms earlier research results (Qian, 2005; Riazi & Babaei, 2008) that contextual clue was the most used strategy by learners. The subjects rarely attended to the physical or grammatical features of words, a finding also reported in Lawson and Hogben (1996). For cognate strategies, the subjects used it least frequently. They used it only 0.41% of the time. This might be because the words tested in this study did not facilitate the use of this strategy. Few words tested in this study were cognates or words loan from English, such as the words *'campaign'* and *'knock out'*. For this reason, the subjects' preference on cognate strategy was very low.

In terms of success in guessing, although the content knowledge strategy was not preferred by the subjects, it was very helpful in the process of incidental vocabulary acquisition through reading. The subjects who used it usually

guessed the meaning of the word correctly, that is, about one third of unknown words could be guessed successfully using this vocabulary learning strategy. By contrast, the strategy the subjects relied primarily on to help them decide the meanings of unknown words, i.e. context, was slightly less effective than the content knowledge. This suggests that success in guessing may not depend on the quantity or frequency of strategy used, but the quality. The low percentages of correct guesses using context found in this study confirm the literature in L2 learning that guessing new words meanings from the context surrounding the unknown words is not an easy task (Lawson & Hogben, 1996; Mori, 2003; Nasaji, 2003).

This finding, on the other hand, is inconsistent with what Osburne and Mulling (1998) found about the vocabulary learning strategies used by Spanish learners who studied English as a second language. Of the three strategies assessed in the study (cognates, morphology, and context), the researchers found that the Spanish learners used the cognate strategy the most, they used it 70% of the time. In particular, it was the strategy related with the highest percentage of success. This is most likely because English and Spanish are closely related, while Thai and English are unrelated and extremely different.

4.7.4 Additional Vocabulary Acquisition

Given the limitation to investigate only the effect of content familiarity on incidental vocabulary acquisition in the previous studies, the present study assessed the effect of this learner-based factor on both the acquisition of the target words and other words contained in the texts. To obtain this information, the subjects were free to select the words to be learned. The findings show that the subjects did learn the meanings of other words in addition to the target words after reading. The words additionally learned consisted of nouns (61.11%), verbs (21.30%), adjectives (13.89%), and adverbs (3.70%) and most of them were high-frequency words (see Appendix F). Regarding the effect of content familiarity, it was found that content familiarity had an impact on additional vocabulary acquisition in the four texts, 6, 7, 13 and 14 (See Table 4.9, p.54).

Based on the findings, the effects of content familiarity seem to have a slightly greater impact on additional learned words than on the acquisition and retention of the target words. This phenomenon can be explained in terms of the words reported as being learned because most of them were high frequency words in contrast to the target words, 69.33% of which were low-frequency words. Therefore, a possible explanation is the fact that high-frequency words are more apt to be learned than the low frequency ones because they are experienced more often than low-frequency words are. This claim is supported by Rugg (1990) that the frequency with which a word appears in a language is a critical determinant of the efficiency of its processing in a wide range of laboratory tasks.

4.7.5 Students' Attitudes towards Learning Words Incidentally through Reading

The attitude questionnaire towards learning words incidentally through reading was mainly used to find out the 25 subjects' attitudes towards learning words through reading two types of texts: general English texts and English newspapers. The results obtained on the 29-item questionnaire reveal that the subjects had positive attitudes towards learning words through reading both types of texts. However, they showed some concerns about this vocabulary learning process and found it disconcerting especially when they did not know the words surrounding the target words and the content of the text. The questionnaire results are discussed as follows:

For learning words incidentally through reading general English texts, the subjects perceived that reading English texts is an important and useful way to develop their vocabulary knowledge. They responded that English teacher should enhance vocabulary learning in context through reading because it gave them a sense of a word's use and meaning. The questionnaire results correspond to the findings of the present study that after the subjects read the texts regardless of their familiarity with the content of the texts, their vocabulary knowledge improved significantly. In addition, there is a strong possibility that the subjects were aware that they learned more vocabulary after reading the texts and this is the reason why they showed favorable attitudes towards learning words through reading texts.

The questionnaire results show that while reading, the subjects used guessing strategies to derive a word meaning; however, they worried about the accuracy of guessing, and time spent on it. They realized that guessing unknown word meanings from the context could lead to misinterpretation of a word meaning, made them spend more time on reading, and wasted their time. One possible reason why they were concerned about these 2 areas might be that they did not possess good reading and guessing strategies. In addition, the text content and the context (words surrounding the target word) itself might obstruct their guessing process. Hence, it seems reasonable to assume that this might be because, normally, the subjects consulted a dictionary, the most reliable source, to get word meanings when they faced unfamiliar words in a reading text.

In terms of learning words incidentally through reading English newspapers, the subjects showed quite the same favorable attitudes towards it as to the learning of words incidentally through reading general English texts. They thought news in English newspapers aroused their interest and motivation, so they enjoyed reading it. For them, reading the news was useful because it not only enhanced vocabulary learning but also developed their reading skill. However, the vocabulary and structures used in the news were considered difficult by the subjects. These difficulties, accordingly, depressed their motivation to read the news and made guessing the meaning of the target words difficult as shown by the low means of vocabulary gain in the present study.

Even the subjects had difficulty with the vocabulary and structures used in the news, their attitudes towards learning words while reading the news remained positive. They reported that they would read the news to develop their vocabulary knowledge in the future because it was useful. They believed that when the content of the news was familiar to them, they guessed the meaning of an unknown word well. They also believed that the words they learned while reading the news could be remembered well.

In terms of attitudes towards guessing word meaning during reading the news, the subjects revealed positive attitudes towards this method. However, it is interesting to note that they thought the content of the text and the text complexity were the important factors that influenced guessing, that is, these two variables made

guessing difficult. They realized that guessing unknown word meanings while reading the unfamiliar news was difficult. Also, they thought that it was not easy to guess word meanings when they did not know the meaning of the words surrounding the target word in the news. Text complexity has been found to obstruct lexical inference while reading (Hulstijn, 1992 cited in Fraser, 1999).

CHAPTER 5

SUMMARY, IMPLICATIONS AND RECOMMENDATIONS

This chapter presents a summary of the study, its implications as well as recommendations based on the findings.

5.1 Summary of the Study

This study investigated the effect of content familiarity on students' incidental acquisition of unknown vocabulary while reading. It was conducted with a group of 25 second year English major students at Thaksin University, Songkhla campus in the academic year of 2011. Its primary aims were; first, to find out if the degree of familiarity contributed significantly to acquisition of new vocabulary encountered in the texts; second, to investigate if the impact of content familiarity would be observed over time; and third to examine the subjects' attitudes towards learning words incidentally through reading English texts and newspapers.

The study used 15 authentic news texts from *the Bangkok Post* as context for the students to learn the meaning of 150 target words. These texts were controlled in terms of topic, length, level of difficulty and degree of familiarity to the students. To obtain the information on their familiarity with each piece of news text, a content familiarity questionnaire was used. A vocabulary test was used as a pre- and post-test to test the students' prior knowledge of the target words and latter as measure of their knowledge of the target words after reading. To assess their ability in retaining the meaning of the acquired target words, a vocabulary retention test was used. In addition, an attitude questionnaire towards learning words through reading was used to find out their attitudes towards learning words incidentally through reading general English texts and newspapers.

The research procedure consisted of three phases, namely a reading phase, a vocabulary retention test phase, and a questionnaire response phase. The reading phase went on for 15 weeks. Each week, the following instruments were used

in the following order: the vocabulary pre-test, a reading passage containing 10 target words, the vocabulary post-test, and the content familiarity questionnaire. The vocabulary retention test phase was conducted two weeks later using the vocabulary retention test. It also continued for 15 weeks. At the end of the data collection, week 15th, the attitude questionnaire was given to the students.

Based on the results obtained, the main research findings can be summarized as follows:

1. Regardless of the effect of content familiarity on incidental vocabulary gain, the 25 subjects' vocabulary knowledge improved significantly after reading the 15 texts. They acquired the meaning of 15.23% of the unknown target words immediately after reading the texts. This finding, therefore, fully supports the contribution of reading to incidental vocabulary acquisition. With regard to the effect of content familiarity, out of 15 texts, the effect of this factor was showed in two texts, Text 3 (*Vietnam vitriol gathers pace*) and 5 (*Abhisit steps down as Democrat leader*). This indicates that the students who were familiar with the content of these two texts acquired more words than the students who were unfamiliar with the texts. In other words, familiarity with the content of these texts contributed to incidental acquisition of the target words appearing in the texts.

2. The students' ability in retaining the meaning of acquired target words two weeks after reading significantly decayed or became weaker, regardless of their levels of familiarity with the content of the 15 texts. They remembered the meaning of 9.36 words which was less than half of the words they learned immediately after reading. In other words, 47.37% of all words acquired were retained. When the effect of content familiarity on vocabulary retention was taken into account, it was found that this factor contributed significantly to the retention of words the subjects who were familiar with the content of Text 1, 5 and 15 acquired from reading these texts. These texts were *"First road death of Songkran reported"*, *"Abhisit steps down as Democrat leader"*, and *"Tackling street racers at source"*. This finding implies that familiarity with the subject matter of these three texts facilitates the students' retention of previously acquired word meanings.

3. Part of speech of a word had an effect on ease of acquiring its meaning. From among the four classes of words tested (i.e. verbs, nouns, adjectives,

and adverbs), the students acquired nouns best. Adverbs, adjectives, and verbs were more difficult for them to acquire. In terms of retention of word classes, adverbs were best retained. Nevertheless, the students had difficulty in keeping the meaning of nouns, adjectives, and verbs in their working memory.

4. In addition to the target words, the students did acquire the meaning of other words containing in the 15 texts while reading. In particular, familiarity with the content of the text 6, 7, 13, and 14 contributed to their acquisition of these additional words even more. These texts were "*Owner admits his men tried to drive out squatters*", "*Nan flood waters start to recede*", "*Southerners press govt for special zone*", and "*Hurricane Irene slams into North Carolina*".

5. In the process of inferring word meanings while reading, the students made use of contextual cues most frequently, which accounted for 68.97% of strategies used. They preferred to utilize other strategies at a lower percentage: content knowledge (18.77%), word morphology (11.85%), and cognate (0.41%). It appeared that when they relied on content knowledge to get unknown word meanings, their success in guessing was higher than using other strategies; the percentage of success was 35.40%. The successful percentages of other strategies were lower: context (34.06%), cognate (33.33%), and word morphology (30.06%) respectively.

6. The students had positive attitude towards the learning of vocabulary incidentally while reading English texts, For them, reading was the best and easiest way to increase their vocabulary knowledge and most of vocabulary they learned was the result of this process. Thus, they liked reading to gain more vocabulary. They believed that while reading the text with familiar and interesting content, their learning outcomes were enhanced. However, they questioned the accuracy of guessing word meanings from context, and worried about the time spent on guessing. Lack of reading and guessing strategies, unfamiliarity with the text content and vocabulary contained in the text hampered learning word meanings and made them concerned about this vocabulary learning process.

In terms of learning words incidentally through reading English newspapers, the students also showed favorable attitudes towards it. They enjoyed reading these authentic news texts as the texts aroused their interest and motivation. However, they showed concern about this vocabulary learning method. Their main

concerns were about the text complexity, the degree of familiarity with the text content, and vocabulary and structures used in the text. These factors were believed to hinder and complicate their inferencing process while reading. By contrast, texts of which content were familiar to them and which contained familiar words seemed to facilitate their incidental vocabulary learning.

5.2 Pedagogical Implication

On the basis of the findings, the following implications for EFL teachers can be suggested.

1. The present study finds that using content knowledge to guess word meanings while reading contributes more to success in guessing than using other vocabulary learning strategies (i.e. context, word morphology and cognate). In addition, a partial effect of content familiarity on incidental vocabulary acquisition through reading was also revealed. Based on these findings, it can be said that content familiarity plays some role in this vocabulary learning process. Therefore, teachers should activate their learners' background knowledge of a given text to enhance incidental vocabulary acquisition, for example discussing the text topic with them as a pre-teaching activity.

2. The percentages of success in guessing using the four types of strategies mentioned above are found to be slightly different. Based on this finding, it is suggested that teachers explicitly train and help the students to use these guessing strategies in the classroom. In addition, teachers should make the students aware that one specific vocabulary learning strategy alone may not be a reliable source of information for successful guessing of a word meaning. The combination of them, on the other hand, might lead them to be more capable in learning new vocabulary. Guessing does not automatically lead to full acquisition of a word meaning; therefore, teachers should encourage the students to verify their inference by using dictionary, for example.

3. In the present study, although it was found that the students acquired word meaning while reading, their vocabulary gain was very low even when reading familiar texts. This indicates that the students have difficulty in learning words from

written context. Therefore, teachers should not encourage their students to rely solely on learning words incidentally from written context. Instead, part of the class time should be given to focusing, defining, and explaining the new words, low frequency or specialized ones, in particular, to the students. After teachers have mentioned these words, they should sometimes return to them because multiple exposures to the same words facilitate the words' acquisition. Direct vocabulary instruction in combination with incidental vocabulary acquisition might enhance the students' vocabulary knowledge better.

5.3 Recommendations for Further Research

The following suggestions are made for further research in understanding of the effect of content familiarity on incidental vocabulary acquisition through reading.

1. The students' familiarity with the content of all texts used in the present study was assessed using the two-scale questionnaire ranging from 1 (unfamiliar - somewhat unfamiliar) to 2 (familiar - somewhat familiar) only. The questionnaire based on the details or events in the texts might give more reliable information on the students' levels of familiarity with the content of each text.

2. The present study was limited to investigation incidental vocabulary gain and retention of target word meanings through a supply-definition test only. Future research should use other types of test, such as a multiple choice test in combination with a supply-definition test to assess both vocabulary gain and retention. Results might vary with these two measures.

3. The study was limited to second year EFL students whose proficiency in second language might to some extent be insufficient in reading authentic news and are more apt to have limited reading experiences. Thus, experienced students with higher L2 reading proficiency may be associated with different findings.

4. Care also needs to be taken in examining the students' vocabulary learning strategies. This study was not mainly designed to investigate the students' use of strategies while guessing word meanings. Instead, it aimed to find out if the

students did employ the content knowledge of the text to guess word meanings and if this knowledge helped them succeed in guessing word meanings. Therefore, it was limited to only four strategies: context, content knowledge, word morphology, and cognate. In particular, the information on the use of these vocabulary learning strategies was obtained solely from the questionnaire. Different data collection methods such as think-aloud protocol, oral interview, and observation should provide more in-depth information.

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APPENDIX A

(Reading Passages)

First road death of Songkran reported

TWO MASCOTS of the highway police - a cuddly-looking policeman named Sergeant Major Narak and an angel of death named "Yommathut Asa" – pose for photos yesterday as they hand out drinking water, maps and Buddhist amulets at a Buri Ram gas station. They are part of the safe-driving campaign during the Songkran holiday.

Interior ministry Chaovarat Chanweerakul said state officials were aiming for no casualties during Songkran this year – despite the fact one person had already been killed in a road accident yesterday.

Chaovarat, speaking at the opening ceremony of the Road Safety Centre (RSC), said he wanted the road toll to be zero although the RSC is aiming for a more realistic result – cutting down the number of deaths during the "seven dangerous day" by 10 per cent.

The initial death was reported in Chanthaburi province after a car crashed into a motorcycle driven by Payung Supsri, 49, who was on his way home after a party. Two people were also injured in the same province.

This year's seven dangerous days started yesterday and will run until Sunday. Last year, there were 361 deaths and 3,802 injuries reported during the same Songkran period.

Chaovarat, in his capacity as RSC director, said the authorities would announce the number of road accidents, fatalities and injuries every day from today. He said the ministry was working with local officials to put up checkpoints, designate special zones for water splashing and implement strict laws on the sale of alcohol.

With official record showing most accidents occurs on secondary roads, he said the ministry has asked its networks and volunteers stationed at checkpoints nationwide to warn motorists of the dangers of driving irresponsibly.

Chaovarat said four committees covering the North, Northeast, Central and East, and the South, had been set up to following up on the road-safety campaigns implemented so far. Top officials in the ministry, including deputy ministers and the permanent secretary, had been appointed to lead each committee and keep him updated at all times. (339 words)

Plan aims to end HIV in children by 2015

World leaders have launched a global plan with the goal of ensuring that every baby is born HIV-free by 2015 – and that their HIV mothers live to raise them.

The UN says a baby is born with the HIV virus nearly every minute. In 2009, that meant 370,000 children were infected with HIV, almost all in low-income and middle-income countries, mainly in Sub-Saharan Africa.

At the UN's high-level meeting on Aids on Thursday, Secretary-General Ban Ki-moon joined other leaders to launch a road map to achieve the goal of eliminating mother-to-child transmission of HIV in the next four years.

"We believe that by 2015 children everywhere can be born free of HIV and that their mothers can remain healthy," said Michel Sidibe, executive director of UNAids, the UN agency fighting the disease. "This new global plan is realistic, it is achievable and it is driven by the most affected countries.

The plan, called "Countdown to Zero", was developed by a team with representatives from more than 30 countries led by Unaids and the US President's Emergency Plan for Aids Relief.

The plan includes ensuring that all pregnant women have access to life-saving HIV prevention and treatment services for themselves and their children and that there are adequate financial resources and trained health staff to meet the goal.

In 2009, an estimated 42,000 to 60,000 pregnant women died because of HIV, almost all of them in developing countries. In high-income countries, new HIV infections and child and maternal deaths due to HIV were almost zero.

Mr Ban said the developed world had shown that "there is every reason to believe that we can save millions of lives across the developing world".

Former US president Bill Clinton said 22 countries accounted for 90% of child infection. He called for lower drug prices and strong political leadership. (313 words)

Vietnam vitriol gathers pace

Anti-China sentiment grows over sea dispute

HANOI: Hundreds of Vietnamese launched a third week of protests against China yesterday amid escalating tensions in disputed waters of the South China Sea, where both countries recently conducted live-fire military drills.

About 300 people gathered near the Chinese embassy in the capital, Hanoi, and marched through the streets, yelling "Down with China!" and demanding that their powerful northern neighbour stay out of Vietnam's territory.

Crowds also gathered in southern Ho Chi Minh City.

"We will fight for our country if the nation needs us," said student Nguyen Manh Ha, 20. "Not only me, but all Vietnamese people will die to protect our territory."

Protests are extremely rare in Vietnam and are typically quashed quickly by security forces, but Hanoi has allowed the demonstrations to go on for the past three Sundays amid tight security. At one point the crowd, waving Vietnam's flags, stopped at a department store and shouted "Boycott Chinese products!"

"I'm here today to protect my country from an invading China," said Nguyen Long, 82, who fought in a short, bloody land border war with China in 1979.

"I'm sure those in the embassy are listening to us shouting 'Down with China!'."

Relations between the communist countries hit a low point after two incidents in the past month involving clashes between Chinese and Vietnamese boats in the South China Sea.

Vietnam accuses Chinese vessels of hindering oil exploration surveys in an area 200 nautical miles off its central coast that it claims as it economic executive zone. China says Vietnam illegally entered its waters near the disputed Spratly Islands and endangered Chinese fishermen.

The two sides have a long history of exchanging diplomatic jabs over maritime incidents, mainly involving areas around the possibly resource-rich Spratly and Paracel islands. (301 words)

ID cards on the way for 268 'rootless people'

Identity cards will soon be granted to the first batch of 268 "rootless people" living in Bangkok as part of a bid to give the marginalised group access to basic human rights.

The Office of Welfare Promotion, Protection and Empowerment of Vulnerable Groups conducted the registration of rootless people earlier this month.

A total of 440 people reported but the screening process found 268 of them had no family members and documents to identify their background.

Rootless people are those who have been abandoned and are living on their own, with no parents or relatives, according to the office.

If they were born to migrant parents, they must have lived in Thailand before Jan 18, 2005.

"These people have no official documents to identify themselves and no relatives to help them acquire identification papers," office director Somchai Charoen-umnuaisuk said yesterday.

The committee on persons' status and rights, which is chaired by Deputy Prime Minister Suthep Thaugsuban, recently instructed the Justice Ministry and the Social Development and Human Security Ministry, along with the National Office of Buddhism, to survey and register rootless people across the country.

Mr Somchai's office is responsible for the registration of rootless people in the capital.

Officials will make a profile of each person, conduct nationality verification and issue them 13-digit ID numbers.

The ID cards will give the rootless people the right of access to basic education and medical care.

Immigrants will be given a work permit and a temporary residence visa and can even apply for driving license.

"The scheme will not only benefit the rootless people, but also the Thai public as a whole. For example, their records will allow the authorities to track them should problems occur," Mr Somchai said.

The second round of rootless people registration in Bangkok will take place at all district offices between Aug 1 and Nov 2. (318 words)

Abhisit steps down as Democrat leader

Prime Minister Abhisit Vejjajiva has quit as leader of the Democrat Party, saying it must review its strategies following the loss in the general election.

Mr Abhisit held a press conference at his party headquarters in Bangkok yesterday morning to announce his resignation and thank his and the party's supporters.

"I think that a good leader of an organization must take responsibility," he said. "So, today I decided to resign as the party leader."

The Democrat Party suffered a resounding defeat in Sunday's election, winning fewer seats than it had in the last election in 2007. Mr Abhisit said his party would have to review its direction.

He said he would remain a Democrat and MP and he would fight tooth and nail against any attempts to dismantle the rule of law and national principles.

Democrat spokesman Buranaj Smutharaks said yesterday Mr Abhisit's resignation automatically terminated the positions of 18 party executives. The Democrats will hold a meeting within 90 days to elect a new executive board and leader.

Asked whether he would agree to resume the party's leadership if party members re-elect him, Mr Abhisit initially declined to answer and started to walk away from the podium. When the same question was repeated, he said that would depend on party members.

He added that the executives had an informal talk on Sunday after learning the election results and agreed that they were still confident in Mr Abhisit's capacities.

Democrat deputy spokesman Boonyod Sooktinthai said the Democrat Party would nominate Mr Aphisit for the post of prime minister in the House as Mr Abhisit was still acting Democrat leader.

Democrat secretary-general Suthep Thaugsuban said yesterday that the Pheu Thai Party successfully used the red shirt movement to woo support in the Northeast and the upper North and consequently the Democrat Party won only four House seats in Northeast, compared to its target of more than 10. It also won 13 seats in the North well short of its goal of 21 seats. (338 words)

Owner admits his men tried to drive out squatters

The company owner who sent 200 armed men to evict squatters occupying his land, resulting in violent clashes, insisted he had the right to do so.

Thamanat Prompao, a former army captain who is the chairman of Thamanat Group, which owns the 616-rai plot housing a disused factory in Khlong Luang district, admitted the back-clad men were his staff and insisted he was justified in deploying them on Saturday.

He said he had earlier filed a complaint with police over the presence of the illegal occupants on his land, but no action was taken.

"They didn't dare step in because they believed those squatters were being exploited by the mafia as a tool to gain bargaining power [over us]," said Capt Thamanat.

He said he had tried to negotiate with the squatters to leave the land but they refused and he decided to take action against them.

A group of about 200 men in black stormed the plot on outbound Phahon Yothin road on Saturday and torched 30 of about 1,000 wooden huts housing the squatters.

Capt Thamarat said his company won an auction to buy the land from the Thai Asset Management Corporation for 3.2 billion baht. The land was previously owned by the bankrupt Thai Melon Polyester Plc.

The squatters set up on the land about two months ago.

About 200 were living there, although there were far fewer involved in the violence as many had returned to their home provinces to vote.

According to Capt Thamanat, some of those who stayed behind were armed with AK and M16 rifles and M79 grenade launchers. He said this explained why six of his men were seriously injured in the clashes.

The men in black left when Khlong Luang district police arrived. Nobody was arrested. (304 words)

Nan flood waters start to recede

NAN: Water has started receding in some areas of this heavily flooded northern province, while in nearby Tak, continuing rainfall is increasing the risk of mountain torrents and mudslides.

After being hammered by torrential rains caused by a tropical depression in Laos since last weekend, Nan residents were slowly returning to their normal lives. Yesterday, locals with the help of government officials, were busy cleaning their homes and streets.

Nan Municipality mayor Suraphon Thiansut said it would take weeks to clean up the garbage and clay littering the roads and clogging sewers.

Flood waters remain high in Wiang Sa district where run-off from the Bo Klue, Nan and Wa rivers converge. They were as high as seven metres in tambons Lai Nan and Khueng near the Wa River, even reaching rooftops in some villages.

The recent floods, which submerged all of Nan's 15 districts, is nearly as bad as the 2006 deluge, which caused one billion baht in damage to the province, Nan governor Seni Chittakasem said.

His Royal Highness Crown Prince Maha Vajiralongkorn and his royal consort HRH Princess Srirasm yesterday gave relief supplies to 1,000 villagers and told a mobile medical unit to treat patients in Phu Phiang district.

HRH Princess Maha Chakri Sirindhorn also gave supplies to flood victims in Tha Wang Pha and Pua districts of the province.

In Tak, villages in the mountains of Mae Sot, Mae Ramat and Phop Phra face the risk of flash floods and landslides as the rains show no signs of ceasing, said Tak governor Samat Loifa, who made an aerial inspection of the area yesterday.

Mr Samat instructed residents to take care of their homes and "stow any belongings that can blow away".

Phitsanulok is likely the next province to suffer after paddy fields were flooded when the Yom River breached its bank last night. (312 words)

Pheu Thai wins 101 seats in NE

Pheu Thai party has kept its grip over the Northeast, winning 101 seats, provisional results suggest.

With 94.85 of votes counted last night, the party, which has its support base in the North and Northeast, had won all but 25 seats in the region.

The 25 seats went to Bhumjaithai, with 13, Chart Pattana Puea Pandin, with six, the Democrats, with five, and Charthaipattana, with one.

Voters' faith in Pheu Thai's policies and the party's de facto leader, Thaksin Shinawatra, remains unshaken.

The Northeast remains the deciding factor for a general election victory.

Pheu Thai strategies wooed voters with campaigns to bring Thaksin back to Thailand and have his youngest sister Yingluck Shinawatra, the party's top list candidate, serve as the first woman prime minister and a catalyst for national reconciliation.

Pheu Thai Party even woo two seats in the lower Northeast, which is the stronghold of the Bhumjaithai Party.

Rural people flocked to polling units.

In Nakhon Ratchasima, many voters turned up at polling stations early.

Gen Weerawut Songsai, chief of election authorities in the province, said Nakhon Ratchasima people came out in large numbers, and the turnout should reach 75%.

Two elderly men tore up their ballots in a polling unit of tambon Maklua Mai of Sung Noen district.

Saeng Prompakdee, 79, said he tore up his ballot because he could not insert the ballot sheets into their boxes.

He thought it would be easier to put them in, one part after another.

Somkhuan Lomthonglor , 64, said he thought he heard an official at the polling unit telling him to tear up his ballot.

In Wapi Pathum district of Maha Sarakham, Mrs Boonsom Namsomboon, 81, was fined for damaging her ballot sheets as she put a hole in the box of the party for which she wanted to vote, instead of marking it with a pen. She said she could not find a pen in her polling booth. (328 words)

South teachers tell world body of safety fears

Teachers in the strife-torn deep South are petitioning an international teachers' body about the dangers they face following the latest killing of a teacher in Pattani.

Boonchuay Thongsri, chairman of a teachers network, said he did not know whether the government's strategy to solve the southern unrest was on the right track or not.

But what he did know was that the security situation in the far South has not improved as claimed by the authorities. Many teachers were still targets of insurgent attacks.

The federation of Southern Teachers had earlier petitioned the Asean Council of Teachers to help solve problems affecting teachers in the far South, but so far no measures had been taken, said Mr Boonchuay.

The federation planned to bring the issue of teacher safety to the attention of the International Teachers Association.

The federation's move followed the latest killing of a teacher in Pattani province on Wednesday.

Noppadon Sasimonthon, 50, from Tanyongluloh school, was gunned down in a drive-by shooting on his way to school.

The killing of Noppadon brought the number of teachers killed in the region to 144 since the unrest flared up again in 2004.

National police chief Wichean Potephosree yesterday inspected the work of police at a so-called safety zone in Yala province.

Pol Gen Wichean and a delegation of senior officers inspected a business area on Ranong Road in Yala municipality and received a briefing about security by Yala police chief Pol Col Kritsada Kaewjandee.

Security on Ranong Road has been tightened following a series of bomb attacks in the business centre.

The municipality introduced the safety zone in the area following the attacks.

Vehicles entering the safety zone are given a thorough inspection.

On Feb 13, a pickup truck carrying a bomb exploded in the Yala business area, damaging many shophouses and houses. (311 words)

Killer floods poised to hit Central zone

The Department of Disaster Prevention and Mitigation has confirmed 17 deaths and named 18 provinces as flood disaster areas after the effects of tropical storm Nock-Ten swept through the North and northeast.

The central region is set to be affected next, with the department warning of floodwaters heading down from the North.

So far, 144 districts in 18 provinces have been named disaster zones, with Phrae, Chiang Mai, Sukhothai, Nakhon Phanom, Lamphun, Lampang, Mae Hon Son, Uttaradit, Loei, and Phetchabun being hardest hit.

The deluge has affected more than 1 million people from 314,732 households, while 619,723 rai of farmland has been damaged.

Of the 17 deaths, seven of them were recorded in Mae Hong Son alone, where another person is also missing.

Even though the water level has subsided in Nan, Nong Khai and Prachuap Khiri Khan provinces, rivers are still overflowing heavily in Phichit, Tak, Nakhon Sawan and Ayutthaya as the flood waters head towards lowlands, especially in the Central Plains.

Many farmers in Ayutthaya's flood-prone Bang Ban district are relying on insurance payouts to recoup their losses, as they say the disasters are too frequent and government payouts too little for them to make a living.

Most rice farmers don't have insurance but an increasing number in the flood-prone area are taking out policies.

The cost may be prohibitive for many, but those who have made the investment after repeated losses of crops say their premiums are worth the money.

Bancha Pandee, a farmer in tambon Ban Kum, said he has subscribed to an insurance programme which covers the first-season rice crops planted in the rainy season.

Farmers pay a premium of 50 baht per rai of rice field per year if they are customers of the Bank for Agriculture and Agricultural Cooperatives. (303 words)

State officials altered Wang Nam Khieo land records

State officials changed land tax records to help push along transfers of land in Wang Nam Khieo district where the government is trying to retrieve forest land from resort and villa owners, a *Bankok Post Sunday* investigation reveals.

The actions defied a directive from the Interior Ministry for local officials not to get involved in land tax issues.

The Senate committee on natural resources and the environment visited the area last week to hear from concerned parties in the dispute over land encroachment, which has led to protests by residents and resort owners.

Some resort owners and state officials told the committee that potential buyers would approach local leaders as they believed their influence could ensure the purchase went ahead despite legal difficulties.

Some also told the committee they had purchased the land from local and national politicians.

Not only were forest reserves allegedly encroached upon, but also land distributed by the Agricultural Land Reform Office (Alro) to help poor farmers, as well as areas in Tab Lan National Park.

Land buyers and sellers approached village heads and asked them to help certify that the plots were not on state land.

After that, they went to the Tambon Administrative Office (TAO) to change the names on a document known as *Por Bor Tor* 5, which is a form for land tax payment.

After the names on the document were changed, potential buyers believed they had some proof to a claim on the land.

In 2008, the Interior Ministry issued a notice to TAOs nationwide instructing them not to work on *Por Bor Tor* 5 forms and land tax collection, reasoning that this might lead to an increase in forest encroachment as the document could be used to assist land sales. (300 words)

Strauss-Kahn back home

PARIS: Dominique Strauss-Kahn returned home to a mixed welcome in France yesterday, for the first time sine attempted rape accusations by a New York hotel maid unleashed an international scandal that dashed his chances for the French presidency.

New York prosecutors later dropped their case against Mr Strauss-Kahn, former head of the International Monetary Fund (IMF), because of questions about the maid's credibility.

But the affair cost Mr Strauss-Kahn his job at the helm of the IMF and exposed his personal life to worldwide scrutiny that has stained his image and left the French divided over what he should do next. His high-profile return home yesterday reflects how large he looms there.

Smiling and waving silently, he stepped off an Air France flight at Paris' Charles de Gaulle Airport a different man from the one who, just four months ago, had been the pollsters' favorite to beat President Nicolas Sarkozy in next year's presidential elections.

Few expect Mr Strauss-Kahn to return to French politics soon – his Socialist Party is already in the throes of their presidential primary – but his supporters have been eagerly awaiting his return after a months-long legal drama in the US that that they saw as unfairly hostile.

Jack Lang, a former Socialist government minister and a neighbor of Mr Strauss-Khan, said that his friend would play a "very important role, not necessarily in the campaign, but in the life of France, the life of Europe".

Mr Lang said that the French people will eventually forget the scandal. "What scandal? In my eyes, he is innocent".

As head of the IMF, Mr Strauss-Khan was widely praised for his management of the institution.

Residents of Sarcelles, a working class Paris suburb where Mr Strauss-Khan is mayor, were largely enthusiastic and empathetic about his return. "I'm happy for him. It's the end of an ordeal. Now… we should leave him alone a little bit," resident Laurent Giaoui said. (322 words)

Southerners press govt for special zone

Muslims in the deep South are urging the Pheu Thai-led government to fulfil its campaign promise to turn the three southernmost provinces into a special administrative zone.

Deputy Prime Minister and Interior Minister Yongyuth Wichaidit told parliament during the government's policy address on Wednesday that his party had never actually floated the idea of establishing the so-called Nakhon Pattani or Pattani Metropolitan model. He said the idea had been initiated by Gen Chavalit Yongchaiyudh, former chaiman of the Pheu Thai Party, and Yingluck Shinawatra repeated it during her election campaign in the deep South.

Mr Yongyuth said the government's policy on decentralisation had been drafted broadly and it was necessary for all stakeholders to discuss the topic and determine what type of special administration should be applied in the deep South.

Anantachai Thaiprathan, former member of the now-dissolved National Reconciliation Commission, said Ms Yingluck must make it clear that turning the restive South into a special administrative zone is a priority for her government.

"Nearly 5,000 people have been killed [in Pattani, Narathiwat and Yala] in since violence flared up in 2004," he said. "Isn't the number of people killed enough evidence to adjust administration in the deep South?"

Mr Anantachai is also a member of a people's network which has drafted a decentralisation bill for a new local administration model in the deep South.

Mr Anantachai cited Section 163 of the constitution which states that the public has a right to propose their own bills to parliament if they have the backing of at least 10,000 supporters.

He said he also wanted the Yingluck government to study this draft law and support it, as he believed it would be an effective tool to help quell violence in the deep South and help empower locals. (301 words)

Hurricane Irene slams into North Carolina

MOREHEAD CITY, N CAROLINA: Hurricane Irene battered the North Carolina coast with wind and rain yesterday, wrecking havoc as it began a potentially catastrophic run up the US East Coast.

More than two million people were told to flee and the New York City transit system was shut down.

New York City mayor Michael Bloomberg said that those who need to evacuate the city should do it now.

The National Hurricane Centre in Miami said Irene's maximum sustained winds were around 137km per hour on Saturday morning, down from about 161km per hour a day earlier. But they warned the hurricane would remain powerful as it trekked toward the mid-Atlantic coast Saturday night and southern New England today.

"The hazards are the same," NHC hurricane specialist Mike Brennan said. "The emphasis for this storm is on its size and duration, not necessarily how strong the strongest wind are."

Hurricane-force winds first arrived near Jacksonville, North Carolina, at dawn yesterday. A little more than an hour later, the storm's centre passed near the southern tip of North Carolina's Outer Banks. At the resort town of Nags Head, the surf pushed up to the backs of some houses and hotels.

As the storm's outer bands of wind and rain lashed the North Carolina coast, knocking out power in places, authorities farther north begged people to get out of harm's way.

"Don't wait. Don't delay," said President Barack Obama, who cut short his summer vocation and returned to Washington.

"I cannot stress this highly enough: If you are in the projected path of this hurricane, you have to take precautions now."

Mr Obama has declared a state of emergency in North Carolina, Virginia, New Jersey, New York, Connecticut and Massachusetts.

Wind and rain knocked out power to more than 91,000 residents along the North Carolina coast, including a hospital in Morehead City, which is now running off generators. (321 words)

Tackling street racers at source

Police are taking a new approach to tackling teen street racing gangs.

Rather than attempting to round up the hundreds of teenagers who take to city streets late at night on weekends, police are now confronting the problem at its source.

They are targeting motorbike modification stores, which they believe are a major contributor to the motorbike mischief.

"Operators of motorcycle modification shops encourage teen racers," said Pol Maj Gen Panu Kerdlarppol, deputy chief of city police.

"They load up their modified bikes on pickup trucks and hold races to showcase their modified bikes as a way of promoting their stores," said Pol Maj Gen Panu.

The motorcyclists are mostly spectators who want to hang around with people with a common interest.

Chasing teen racers can also be dangerous, he says. The youths feel an adrenaline rush when police give pursuit, which can lead to accidents.

"They told me they feel tense and excited when they see police coming. They rev up their engines when we get close, then take off. It makes the adrenaline flow," Pol Maj Gen Panu said.

On some nights, hundreds may gather in the same spot. They scatter in all directions, which can trigger traffic chaos.

Teens usually get wind of police crackdowns. Some of them are the children of police, or they know rescue workers who give them a heads-up.

Pol Maj Gen Panu said police will check on the 20-30 small motorbike modification stores in Thon Buri and Bang Na and discourage them from working on teenagers' motorbikes.

Police could also set up road checkpoints to deter the activity.

And as always, they are urging parents to keep closer watch on their children.

Pol Maj Gen Panu said enforcing the child protection law against the parents of errant teens seldom works. The law says police can act only when parents actively support of assist in wrongdoing. (318 words)

APPENDIX B

(Target Words)

A List of 150 Selected Target Words

1. casualty (n)	30. endangered (adj)
2. toll (n)	31. grant (v)
3. crash (v)	32. batch (n)
4. authority (n)	33. conduct (v)
5. fatality (n)	34. identify (v)
6. designate (v)	35. abandon (v)
7. implement (v)	36. relative (n)
8. station (v)	37. registration (n)
9. irresponsibly (adv)	38. access (n)
10. campaign (n)	39. immigrant (n)
11. launch (v)	40. permit (n)
12. raise (v)	41. conference (n)
13. infect (v)	42. resignation (n)
14. eliminate (v)	43. attempt (n)
15. remain (v)	44. dismantle (v)
16. representative (n)	45. terminate (v)
17. pregnant (adj)	46. resume (v)
18. adequate (adj)	47. decline (v)
19. income (n)	48. capability (n)
20. former (adj)	49. nominate (v)
21. protest (n)	50. woo (v)
22. drill (n)	51. insist (v)
23. gather (v)	52. admit (v)
24. yell (v)	53. deploy (v)
25. quash (v)	54. occupant (n)
26. crowd (n)	55. exploit (v)
27. incident (n)	56. bargain (v)
28. accuse (v)	57. negotiate (v)
29. illegally (adv)	58. torch (v)

A List of 150 Selected Target Words

59. auction (n)	88. tighten (v)
60. arrest (v)	89. inspection (n)
61. recede (v)	90. explode (v)
62. torrent (n)	91. disaster (n)
63. hammer (v)	92. sweep (v)
64. garbage (n)	93. deluge (n)
65. submerge (v)	94. household (n)
66. relief supply (n)	95. missing (adj)
67. victim (n)	96. subside (v)
68. cease (v)	97. overflow (v)
69. inspection (n)	98. investment (n)
70. likely (adj)	99. subscribe (v)
71. grip (n)	100. premium (n)
72. provisional (adj)	101. retrieve (v)
73. region (n)	102. reveal (v)
74. faith (n)	103. defy (v)
75. victory (n)	104. encroachment (n)
76. reconciliation (n)	105. approach (v)
77. flock (v)	106. distribute (v)
78. turn up (v)	107. certify (v)
79. ballot (n)	108. plot (n)
80. fine (v)	109. proof (n)
81. unrest (n)	110. issue (v)
82. insurgent (adj)	111. scandal (n)
83. petition (v)	112. dash (v)
84. measure (n)	113. drop (v)
85. attention (n)	114. affair (n)
86. flare up (v)	115. scrutiny (n)
87. briefing (n)	116. image (n)

A List of 150 Selected Target Words

117. hostile (n)	134. trek (v)
118. praise (v)	135. lash (v)
119. empathetic (adj)	136. beg (v)
120. ordeal (n)	137. precaution (n)
121. fulfil (v)	138. declare (v)
122. administrative (adj)	139. knock out (v)
123. policy (n)	140. run off (v)
124. establish (v)	141. tackle (v)
125. initiate (v)	142. round up (v)
126. restive (adj)	143. spectator (n)
127. adjust (v)	144. pursuit (n)
128. propose (v)	145. tense (adj)
129. bill (n)	146. rev up (v)
130. quell (v)	147. chaos (n)
131. batter (v)	148. set up (v)
132. flee (v)	149. urge (v)
133. evacuate (v)	150. enforce (v)

Summary of Target Words

77 verbs
59 nouns
12 adjectives
2 adverbs

APPENDIX C

(Vocabulary Test)

Vocabulary Pre-Test

(Example of tested words from Text 1)

Name _____ Student Code _____

Write the meaning of the following words in Thai.

No.	Words	Word Meanings (in Thai)
1	casualty	
2	toll	
3	crash	
4	authority	
5	fatality	
6	designate	
7	implement	
8	station	
9	irresponsibly	
10	campaign	

Vocabulary Post-Test

(Example of tested words from Text 1for student No.1)

Name   Pongsatorn Tongsun   Student Code   531011662

Write the meaning of the following words in Thai. Then, identify which strategy you learned the meaning of the words. Put (√) in the column you choose.

No.	Words	Word Meanings (in Thai)	Vocabulary Learning Strategies			
			Content Know-ledge	Context	Word Morphology	Cognate
1	casualty					
2	toll					
3	authority					
4	fatality					
5	designate					
6	implement					
7	irresponsibly					
8	campaign					

* In the pre-test, student 1 identified that he knew the meaning of '*crash*' and '*station*', but did not know the other 8 words. So his post-test consisted of only 8 words.

Vocabulary Post-Test

(Additional Learned Words)

Name _____ Student Code _____

Write any other words you learned while reading in addition to the target words.

No.	Words	Word Meanings (in Thai)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

APPENDIX D

(Vocabulary Retention Test)

Vocabulary Retention Test

(Example of tested words from Text 1)

Name _____ Student Code _____

Write the meaning of the following words in Thai.

No.	Words	Word Meanings (in Thai)
1	casualty	
2	fatality	
3	campaign	
4		
5		
6		
7		
8		
9		
10		

APPENDIX E

(Questionnaires)

Content Familiarity Questionnaire

Name . . . . News No. . . . .

Based on the news you read, decide if the content of the news is familiar to you or not. Check (√) in the blank indicating the reason you choose.

To me, the content of this news is

………..	**familiar – somewhat familiar**	because I have known or heard about the news from various media or other sources
………..	**Unfamiliar – somewhat unfamiliar**	because the content of the news is unfamiliar to me and I have never known or heard about the news, *or,* I know something about the news but it is quite sketch

Attitude Questionnaire towards Learning Words through Reading

Personal Information

Name_____ Student ID._____

Faculty_____ Major_____

Instruction: Please specify your level of agreement or disagreement to the statements below. Place a check in the box you choose.

5	=	Strongly Agree
4	=	Agree
3	=	Moderately Agree
2	=	Disagree
1	=	Strongly Disagree

Part 1: Attitudes towards learning words through reading English texts

Items	Statements	Level of Agreement				
		5	4	3	2	1
1.	I learn most vocabulary while reading English texts.					
2.	I like reading English texts to gain new words.					
3.	Reading English texts is the best and easiest way to develop my vocabulary knowledge.					
4.	I can learn more vocabulary while reading English texts in which I am interested.					
5.	While reading familiar English texts, I can learn vocabulary well.					

Items	Statements	Level of Agreement				
		5	4	3	2	1
6.	I can recall the vocabulary I learn while reading English texts.					
7.	I think vocabulary learning in context gives me a sense of a word's use and meaning.					
8.	English teachers should enhance vocabulary learning in context through reading.					
9.	While reading English texts, I guess unknown word meanings from contextual clues in the texts.					
10.	Guessing unknown words meanings from the text context can lead to misinterpretation.					
11.	Guessing unknown words meanings from the text context takes time and slows down the reading process.					
12.	It is difficult to guess the meaning of unknown words when I don't have reading strategies.					
13.	It is difficult to guess unknown word meanings if I don't know strategies for guessing them.					
14.	Guessing unknown word meaning is more difficult if I am not familiar with the content of the text					
15.	Guessing unknown word meanings is difficult if I don't know the meanings of the words surrounding the target word.					

Part 2: Attitudes towards learning words through reading English newspapers

Items	Statements	Level of Agreement				
		5	4	3	2	1
16.	News in English newspapers arouses my interest and motivates me to read.					
17.	Reading news in English newspapers helps me learn vocabulary.					
18.	Reading news in English newspapers enables me to develop my reading skill.					
19.	Learning words while reading news in English newspaper is useful.					
20.	It is enjoyable to read news in English newspapers.					
21.	Guessing unknown word meanings during reading news in English newspapers is not boring but challenging.					
22.	Guessing the meaning of unknown words while reading news in English newspapers is not difficult.					
23.	I can retain the meanings of words acquired from reading news in English newspapers well.					
24.	While reading familiar news, I can guess the meanings of unknown words well.					
25.	In the future, I will read news in English newspapers to develop my vocabulary knowledge.					
26.	News in English newspapers uses difficult vocabulary, so I am not motivated to read it.					

Items	Statements	Level of Agreement				
		5	**4**	**3**	**2**	**1**
27.	News in English newspapers uses difficult structures, so I am not motivated to read it.					
28.	It is difficult to guess the meaning of unknown words if I am not familiar with the content of the news.					
29.	It is difficult to guess the meaning of target words if I don't know the meaning of the surrounding words in the news.					

Please note any comments or suggestions about learning words through reading English newspapers

_____
_____
_____
_____
_____
_____
_____
_____
_____

Thank you.

APPENDIX F

(Additional Learned Words)

A List of 108 Additional Learned Words

1. report (v)	30. exploration (n)
2. volunteer (n)	31. embassy (n)
3. minister (n)	32. zone (n)
4. strict (adj)	33. survey (n)
5. motorist (n)	34. powerful (adj)
6. danger (n)	35. benefit (v)
7. injury (n)	36. rootless (adj)
8. announce (v)	37. quit (v)
9. ministry (n)	38. democrat (n)
10. province (n)	39. suffer (v)
11. committee (n)	40. prime minister (n)
12. aim (v)	41. confident (adj)
13. checkpoint (n)	42. supporter (n)
14. leader (n)	43. party (n)
15. join (v)	44. step down (v)
16. secretary (n)	45. seat (n)
17. affected (adj)	46. explain (v)
18. develop (v)	47. chairman (n)
19. financial (adj)	48. illegal (adj)
20. emergency (n)	49. increase (v)
21. president (n)	50. risk (n)
22. include (v)	51. flood (n)
23. developing country (n)	52. local (n)
24. prevention (n)	53. landslide (n)
25. agency (n)	54. village (n)
26. director (n)	55. mudslide (n)
27. goal (n)	56. list (n)
28. demonstration (n)	57. polling station (n)
29. protect (v)	58. election (n)

59. voter (n)	84. tax (n)
60. candidate (n)	85. concerned (adj)
61. vehicle (n)	86. document (n)
62. kill (v)	87. eagerly (adv)
63. situation (n)	88. necessarily (adv)
64. strategy (n)	89. silently (adv)
65. issue (n)	90. return (v)
66. business centre (n)	91. personal (adj)
67. solve (v)	92. politics (n)
68. shophouse (n)	93. pollster (n)
69. damage (v)	94. violence (n)
70. record (v)	95. determine (v)
71. frequent (adj)	96. effective (adj)
72. central (adj)	97. discuss (v)
73. farmland (n)	98. dissolve (v)
74. insurance (n)	99. southernmost (adj)
75. payout (n)	100. decentralisation (n)
76. crop (n)	101. priority (n)
77. agriculture (n)	102. coast (n)
78. confirm (v)	103. resident (n)
79. affect (v)	104. projected (adj)
80. storm (n)	105. dangerous (adj)
81. customer (n)	106. engine (n)
82. influence (n)	107. wrongdoing (n)
83. environment (n)	108. actively (adv)

Summary of additional learned words

66 Nouns
23 Verbs
15 adjectives
4 adverbs

VITAE

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List of Publication and Proceeding

Lebkatem, W., & Chiramanee, T. (2012). Incidental Vocabulary Acquisition through
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