การพัฒนาทักษะการอ่านของนักศึกษาระดับบัณฑิตศึกษา มหาวิทยาลัยขอนแก่น โดยใช้บทเรียนผ่านเว็บ
Improving Reading Skills of Khon Kaen University Graduate Students via Web-based Lessons

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บทคัดย่อ

   งานวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาทักษะการอ่านของนักศึกษาระดับบัณฑิต
ศึกษา มหาวิทยาลัยขอนแก่นหลังจากเรียนบทเรียนผ่านเว็บและศึกษาทัศนคติของบัณฑิต
ศึกษา มหาวิทยาลัยขอนแก่นที่มีต่อบทเรียนผ่านเว็บ กลุ่มตัวอย่างที่ใช้ในการวิจัยครั้งนี้คือ
นักศึกษาระดับบัณฑิตศึกษา จำนวน 63 คนที่ลงทะเบียนในรายวิชา 411 711 การอ่าน
ภาษาอังกฤษสำหรับนักศึกษาระดับบัณฑิตศึกษา ภาคต้น ปีการศึกษา 2559 เครื่องมือ
ที่ใช้ในการวิจัยครั้งนี้ได้แก่ 1) แบบทดสอบก่อนเรียนและหลังเรียน 2) บทเรียนผ่านเว็บ
3) แบบสอบถามความคิดเห็น และ 4) แบบสัมภาษณ์ ผู้วิจัยได้วิเคราะห์ข้อมูลทางสถิติ
เบื้องต้นโดยใช้โปรแกรม SPSS เพื่อหาค่าเฉลี่ย (Mean) ส่วนเบี่ยงเบนมาตรฐาน (S.D.)
และการทดสอบค่า t (t-Test) อีกทั้งผู้วิจัยได้ใช้การวิเคราะห์ข้อมูลเชิงเนื้อหาในการ
วิเคราะห์แบบสอบถามความคิดเห็นแบบปลายเปิดและแบบสัมภาษณ์ ผลการวิจัยพบว่า
คะแนนเฉลี่ยจากแบบทดสอบหลังเรียนผ่านบทเรียนผ่านเว็บ สูงกว่าคะแนนเฉลี่ยจากแบบ
ทดสอบก่อนเรียน ซึ่งหมายความว่า คะแนนเพิ่มขึ้นอย่างมีนัยสำคัญที่ระดับ 0.05 หลังจาก
เรียนบทเรียนผ่านเว็บ นอกจากนี้พบว่า การเดาความหมายศัพท์จากบริบท (Guessing
Meaning from Context) เป็นกลยุทธ์การอ่านที่ผู้เรียนมีพัฒนาการดีที่สุด และจากการ

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วิเคราะห์แบบสอบถามและแบบสัมภาษณ์ พบว่าผู้เรียนมีทัศนคติในเชิงบวกต่อบทเรียน ผ่านเว็บ โดยเห็นว่าบทเรียนน่าสนใจ สนุกและสามารถพัฒนาทักษะการอ่านภาษาอังกฤษ สำหรับนักศึกษาระดับบัณฑิตศึกษาได้ พร้อมทั้งเสนอแนะให้มีการนำบทเรียนผ่านเว็บไปใช้ เพื่อพัฒนาทักษะอื่นๆทางภาษาอังกฤษด้วย

คำสำคัญ: ทักษะการอ่าน บทเรียนผ่านเว็บ มูเดิล นักศึกษาระดับบัณฑิตศึกษา

Abstract

The objectives of this study were to examine Khon Kaen University graduate students' reading skills after learning via web-based lessons and to investigate the attitudes of Khon Kaen University graduate students towards learning via web-based lessons to improve their reading skills. The participants were 63 graduate students who enrolled in 411 711 Reading in English for Graduate Students course in the first semester of academic year 2016. The instruments used in this study were 1) the pretest and the posttest, 2) web-based lessons, 3) the questionnaire, and 4) the interview. The data were statistically analyzed by using SPSS program to find out mean (M), standard deviation (S.D.), and t-Test. The results from the open-ended part of the questionnaire and the interview were analyzed by content analysis. The research findings indicated that the mean scores of the posttest were significantly higher than the pretest which means that students' reading skills were significantly increased at 0.05 level after learning via web-based lessons. In addition, guessing meaning from context is claimed as most developed among all reading strategies. According to the analysis from the questionnaire and the interview, the results showed that students' attitudes towards learning via web-based lessons were at high level. Students revealed that the

web-based lessons are interesting, fun, and useful for improving their reading skills. Students also suggested that web-based lessons were appropriate to be integrated as to develop other English skills.

Keywords: Reading Skills, Web-based Lessons, Moodle, Graduate Students

1. Introduction

Reading is a vital skill which students need to master in order to ensure success in learning. To be successful in language learning, if students are strengthening of reading skills, they are able to make greater progress in other areas of language learning (Anderson, 2003a). Moreover, Alderson (1984) stated that reading skills are a core to academic studies, professional success, and personal development. Reading skills play an important role in language learning especially in higher education. Levine et al. (2000) stated that one of the most important skills that university students need to acquire is to read academic texts. As a result, reading is very necessary for graduate students since they spend a lot of time studying English materials in order to gain a deeper understanding of the text (Pimsarn, 2009).

However, reading skills are handling the enormous problems to students in Thailand because they found that English is difficult, and they lack of motivation to read (Phantharakphong & Photita, 2014). Many of Thai EFL students are not well-proficient readers because they do not know how to apply reading strategies effectively (Yoosabai, 2009). They are also limited in learning to develop reading skills because most of English reading classes have been taught based on translation from English to Thai instead of based on reading strategies which would help the readers to construct the meaning of the text, and they are failed to comprehend text and interpret text meaningfully (Soonthornmanee, 2002; Yoosabai, 2009).

Especially, graduate students are considered as adult learners who "do not learn English language as easy as youngsters or children" because their age implied less memory, less reading comprehension abilities, and time-consuming to understand something (Flórez, Pineda, & García, 2012, p. 121). Moreover, due to their multiple responsibilities as such their full-time job, adult learners do not ultimately expose to learn (Cozma, 2015). They may attend the class with low energy. Thai graduate students must read an academic English text in order to gain an idea and relevant information, so they must devote extreme effort to read in order to gain a deep understanding of research articles and academic texts (Pimsarn, 2009). Therefore, graduate students are required to be assisted by necessary learning approach which is appropriate for adult learners.

Autonomous learning is one of necessary approaches in language learning (Nation, 2001; Sanprasert, 2010; Warner & Jones, 2011). The constructivism theory is mainly involved in autonomous learning (Wang, 2010). Students are able to develop their ability and will be more exposed to things beyond the classroom for what they have learnt by themselves (Ahmad, Yaakub, Rohani, & Rahim, 2004). Thereafter, technology is introduced in language learning because it is considered to be one of methods that can help students to be an autonomous learner (Wang, 2010). Moreover, graduate students tend to become more self-directed learners than young learners (Cozma, 2015). Thus, the use of technology is recommended for language learning which will be a motivator for graduate students to have an intention in learning at their own pace.

Considering the specific tool of technology, web-based instruction is one of alternatives to support language learning. At present, web-based instruction is an innovative approach which is further growing in language learning (Sarica & Cavus, 2009). Web-based instruction accounts for increasing

students' attendance, engagement, and motivation (Mohammadi, Ghorbani, & Hamidi, 2011). Moreover, Conroy (2010) cited that university students are enthusiastic and reasonable to use the internet. In addition, a number of studies found that most of EFL students from many countries including Thailand have positive attitudes in learning towards web-based instruction (Son, 2008). Many research studies claimed that web-based instruction is an effective way to improve reading skills (Dreyer & Nel, 2003; Flórez, Pineda, & García, 2012; Muñoz, & González, 2010) Thereby, web-based instruction will be used for assisting graduate students to improve reading skills in this study.

For the specific software, Modular Object-Oriented Dynamic Learning Environment (Moodle) is chosen for conducting in this research because it is very beneficial in managing online learning, and it is suggested for teachers (Martinez & Jagannathan, 2008; Meurant, 2010; Rice & Nash, 2010; Robertson, 2008; Suvorov, 2010; Wright & Wright, 2011). Moodle can construct the courses in pattern of web-based platform which is claimed as a Free and Open Source Software (FOSS) and Course Management System (CMS). In Thai education, one of issues in education development is that all students and educational institutions should gain a benefit from technology equally in order to make lifelong learning (Laohajaratsang, 2009). As a result, Moodle is desirable to expand and develop in order to construct the lessons for Thai EFL students.

As there is a little evidence that web-based instruction was being used to teach reading skills, especially in graduate level; therefore, this study employed web-based lessons to develop Thai graduate students' reading skills as previous studies showed that web-based instruction was very helpful to assist students' reading skills (Arismendi, Colorado, & Grajales, 2011; Hsieh & Ji, 2013; Kongphet, 2012; Osorno & Lopera, 2012; Ulfiati, Kurniawan, & Failasofah, 2014). Due that most of graduate students have their full-time job, they will gain more effective learning if there are some online courses

as a supplementary learning to them (Rezvani & Ketabi, 2011). Therefore, it will be beneficial to Khon Kaen University graduate students to develop their reading skills via web-based instruction.

In conclusion, the goal of this study is to develop web-based lessons because they are effective to apply in assisting reading skills to Khon Kaen University graduate students. The study will focus on the use of web-based lessons to improve reading skills and to promote learners' autonomy of Khon Kaen University graduate students. The purposes of this study are to examine Khon Kaen University graduate students' reading skills after learning via web-based lessons and to investigate the attitudes of Khon Kaen University graduate students towards learning via web-based lessons to improve their reading skills. Therefore, the purpose of this article is to address the following research questions:

1. What are the effects of the web-based lessons on Khon Kaen University graduate students' reading skills?

2. What are Khon Kaen University graduate students' attitudes towards learning via web-based lessons to improve their reading skills?

2. Literature Review

2.1 Reading Strategies

Reading strategies are very beneficial to readers when they need to comprehend the text. Many researchers (e.g., Anderson, 2003b; Gardner, 1987; Paris, Lipson, & Wixon, 1983) have defined the meaning of "reading strategies". According to Paris, Lipson, and Wixson (1983), reading strategies refer to the sequences of actions to help readers to construct the meaning of the text. In addition, Gardner (1987) defined the meaning of reading strategies as the cognitive steps that help readers to acquire, store, and

retrieve new information that is able to access to conscious use. As Anderson (2003b) described, reading strategies are that readers should take the active role in strategic reading, and learn how to use a range of reading strategies that reach their objectives.

Researchers have classified reading strategies which are various based on their studies. For example, Global reading strategies and local reading strategies are categorized by Block (1986). Readers use local reading strategies to identify grammatical structures, sound-letter, word meaning, and text details, while global readings strategies focus on how students monitor their reading. In addition, Anderson (1999) also provided twenty-four reading strategies on checklist which is classified as cognitive, metacognitive, and compensating strategies. Furthermore, Brown (2001) proposed ten reading strategies based on bottom-up and top-down models such as identifying purposes for reading or using graphemic rules and patterns to aid in bottom-up decoding. Even though reading strategies are identified and classified into different ways, this study will focus only on guessing meaning from context, scanning, making inferences, identifying topic and main idea, identifying the pattern, and skimming because these reading strategies are necessary for Khon Kaen University graduate students in order to read English academic text (Brown, 2001; Floris & Divina, 2009; Hellekjaer, 2009; Saengpakdeejit & Intaraprasert, 2014; & Yaemtui, 2015).

2.2 Web-based Instruction

Web-based Instruction can be defined in various ways. For example, Khan (1998) defined web-based instruction as a "hypermedia-based instructional program which utilizes the attributes and resources of the World Wide Web to create a meaningful learning environment where learning is fostered and supported" (p. 6). In addition, Relan and Gillami (1997) defined web-based instruction as teaching and learning supported by the attributes and

resources of the World Wide Web. Moreover, Sarica and Cavus's definition (2009), web-based instruction is an internet-based application or website which is claimed as "anywhere and anytime learning" in designing the courses to encourage learning strategies. The concept of the website or web-based instruction can be very beneficial to teachers to create interest and efficient teaching and learning (Kun, 2011). Web-based instruction is able to construct some numerous tasks which are meaningful to language students (Son, 2008). In summary, web-based instruction is viewed as an innovative approach for delivering instruction to the students using website as the medium.

For Specific Software, Modular Object-Oriented Dynamic Learning Environment which is Free and Open Source Software (FOSS) and Course Management System (CMS) is provided for constructing the course in the web-based platform (Meurant, 2010). Moodle is effective software to conduct web-based learning environment as used in this study. Because Moodle is one of the popular and useful software in creating web-based instruction, it is recommended for teachers (Martinez & Jagannathan, 2008; Meurant, 2010; Rice & Nash, 2010; Robertson, 2008; Suvorov, 2010; Wright & Wright, 2011). In addition, Moodle is popular in second language learning especially in literacy (Meurant, 2010). Inferentially, a number of teachers prefer to use Moodle for teaching and learning due to its worthiness, especially in financial reasons. Besides, Moodle is a learning tool which promotes the social constructivist pedagogy (Nagi & Suesawaluk, 2008; Ozek, Kesli, & Kocoglu, 2009; Rice & Nash, 2011; Wright & Wright, 2011). This learning philosophy assists students to improve their learning by constructing their own knowledge by getting involved with others or activities that they are learnt such as learning by hearing, reading, discussing, practicing, and remembering (Rice & Nash, 2010). In short, Moodle provides a great benefit when learning in order to enhance students to become autonomous language learners.

In conclusion, Moodle is very beneficial to assist students in language learning especially in reading skills. As mentioned earlier, Thai EFL students are still facing problems in reading skills. Teachers can apply Moodle to assist students in order to improve their reading skills.

3. Research Methodology

3.1 Participants

The participants in this study were 63 graduate students in Khon Kaen University, who were chosen by purposive sampling technique. They enrolled in 411 711 Reading in English for Graduate Students in first semester of academic year 2016.

3.2 Research Design

This study was conducted by one group pretest-posttest design which this design "uses the same group for both measurements ...and can be used when an intervention (treatment) affects a specific target group" (Hernández, 2000, p. 63). Participants had to take pretests before the treatment was intervened or learning through web-based lessons. Then, the posttest was conducted to measure of participants' achievement. This research aimed to examine what participants gained or knew after using web-based lessons.

3.3 Research Instruments

The research instruments in this study include (1) the pretest and posttest, (2) web-based lessons, (3) the questionnaire, and (4) the interview.

1) The Pretest and the Posttest

The pretest and the posttest aimed to examine the progress of students' reading ability.

In this study, the paper-based multiple choice test was conducted instead of computer-based test because the participants, who are graduate students considered as adult learner, have limited digital literacy experience

and difficulties at decoding the multimedia interfaces with technology (Flórez, Pineda, & García, 2012). The test was created based on Cambridge English: Advanced test which is equal to Common European Framework Reference at C1 level which is the requirement for graduate students in the hope that students will become proficient readers (Cambridge English Language Assessment, 2016). The purposes of CAE reading test are to expect students to skim and scan texts for relevant information, gasp the main topic of the text, get the idea of what expect from the text, and understand the text by guessing from context and implied meaning (Cambridge English Language Assessment, 2015; Cambridge English Language Assessment, 2016).

The pretest and the posttest encompassed all six reading strategies: (1) guessing meaning from context, (2) scanning, (3) making inferences, (4) identifying topic and main idea, (5) identifying the pattern, and (6) skimming which were the required reading strategies proposed by 411 711 Reading in English for Graduate Students, Khon Kaen University. In both pretest and posttest contain six reading passages which the length of each passages has 300-600 words, so total length of the test were about 3,000-3,500 words to read in total within one hour and thirty minutes. Moreover, the reading text came from newspapers and magazines, journals, books (fiction and non-fiction), promotional and informational materials, based on the specification of Cambridge English: Advanced test (Cambridge English Language Assessment, 2016).

2) Web-based Lessons

Web-based lessons were developed to assist teaching reading strategies, by using Moodle, which is provided by the Institute of Learning and Teaching, Khon Kaen University. Moodle is a free course software and Course Management System (CMS) which is provided to construct the learning

course in web-based platform (Rice & Nash, 2010). Therefore, the web-based lessons were constructed within a host page of KKU Moodle shown as one course in the Graduate School.

This section will explain the construction of web-based lessons in detail regarding their component, design, and validity. For the component of web-based lessons, the selection of reading materials will be first mentioned. At the first stage, the researcher found the authentic reading texts from both paper-based texts and internet-based texts provided by Cambridge English Advanced, which are appropriate to graduate students comparing to C1 level of CEFR. Then, the web-based lessons were created to help students to use the reading strategies. All the reading materials were related to three branches: English for Science and Technology, English for Health Science, and English for Humanities and Social Sciences because the course is provided to all graduate students in all faculties in Khon Kaen University.

In summary, Figure 1 shows the steps of using web-based lessons.

3) The Questionnaire

The questionnaire in this study was used to investigate the attitudes of participants towards learning via web-based lessons in order to develop their reading skills. According to Kumar (2005), "a questionnaire is a written list of questions, the answers to which are recorded by respondents" (p. 126). In other words, the students themselves answer the questions and fill in a form of information according to instructions. The questionnaire consists of two parts which are the respondents' general information and their attitudes towards learning via web-based lessons. The second part contains 20 statements designed purposely to discover students' attitudes adapted from Liaw and Huang (2011), Paris (2004), and Žuvic-Butorac, Roncevic, Nemcanin, and Nebic (2011). Their alpha reliability of questionnaire is approximately 0.9 which is highly accepted. In addition, the last part of questionnaire included

an open-ended question to encourage suggestions. Each statement of the questionnaire was required participants to respond to a series of statements according to the Likert scale by scoring the level of attitudes.

4) The Interview

In this study, twenty participants were randomly selected by purposive sampling in order to give an interview to the researcher. To give an interview, researcher conducted semi-structured interview which has a list of questions about the use of web-based lessons. The interview questions were about (1) how web-based lessons supports reading strategies, (2) the problems found while learning via web-based lessons, and (3) the suggestions of using web-based lessons.

All research instruments were checked by the experts, tried out with non-participants, and then improved before using in the data collection.
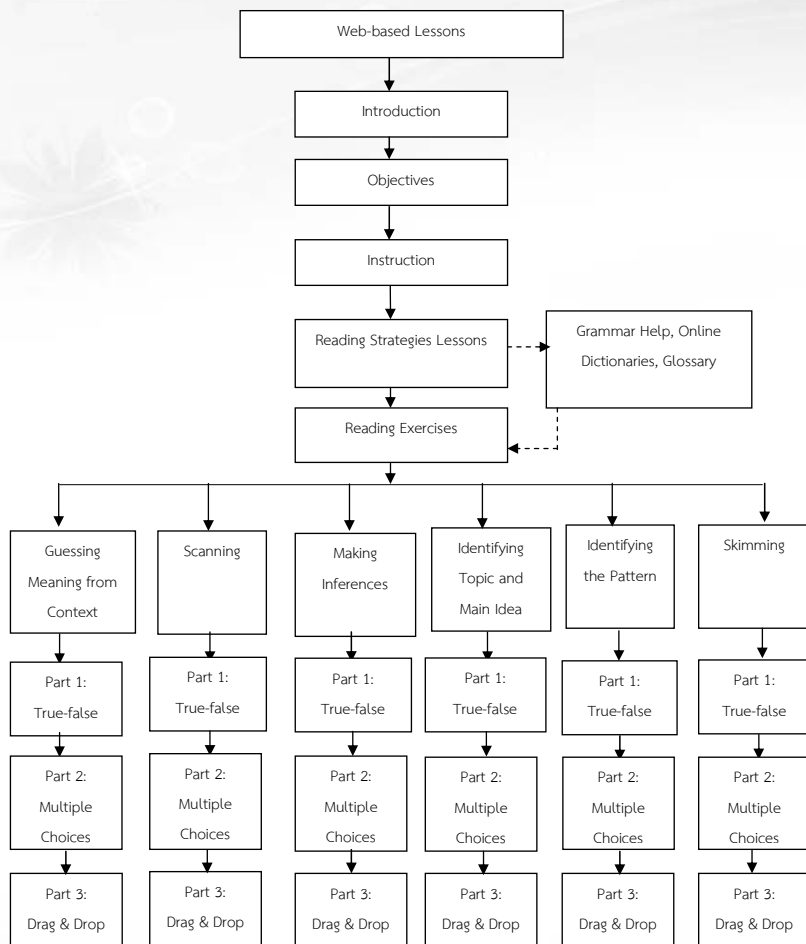
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Guessing Meaning from Context	Scanning	Making Inferences	Identifying Topic and Main Idea	Identifying the Pattern	Skimming
Part 1: True-false	Part 1: True-false	Part 1: True-false	Part 1: True-false	Part 1: True-false	Part 1: True-false
Part 2: Multiple Choices	Part 2: Multiple Choices	Part 2: Multiple Choices	Part 2: Multiple Choices	Part 2: Multiple Choices	Part 2: Multiple Choices
Part 3: Drag & Drop	Part 3: Drag & Drop	Part 3: Drag & Drop	Part 3: Drag & Drop	Part 3: Drag & Drop	Part 3: Drag & Drop

Figure 1 The Diagram of Web-based Lessons

4. Data Collection

The study was conducted during the first semester of the academic year 2016 at the Faculty of Humanities and Social Sciences, Khon Kaen University. The process of this study is the integration between the teaching

reading strategies and web-based lessons. The procedure of data collection was segmented into ten weeks as follows:

Week 1 Participants were provided with the orientation part that guides them how to use web-based lessons constructed by Moodle. Firstly, participants were asked to preview the use of computer such as how to log in, put passwords, and start learning web-based lessons in each lesson. They also have to check for the computers' readiness. Next, participants were introduced to the objectives of the study and the instructions in order that they would understand clearly what they should know about learning web-based lessons.

Week 2 The pretest provided to participants before studying with web-based lessons.

Week 3-8 Participants learnt web-based lessons: lesson 1-6 (1 lesson/week)

Week 9 When participants finished learning all web-based lessons, they were required to take the posttest in order to examine the improvement of reading skills after learning via web-based lessons.

Week 10 The questionnaires were distributed to all participants in order to investigate the students' attitudes towards learning via web-based lessons. After that, twenty participants who were randomly selected by purposive sampling gave an interview.

5. Results

The results of the study were examined and reported statistically and descriptively based on each research instrument.

5.1 The Pretest and the Posttest

According to the pretest and the posttest, the overall results were reported statistically by using SPSS to find out the p-value (t-test) by comparing the mean scores between the pretest and the posttest. The results were reported in Table 1 below.

Table 1 The Comparison between the Mean Scores of the Pretest and the Posttest

Tests	Students	Mean scores $(\bar{X})$	S.D.	t-Test	p-value
Pretest	63	23.48	8.99	10.417	**0.000
Posttest	63	35.06	8.87		

** p < 0.05

From Table 1, the mean scores of the pretest were 23.48, and the standard deviation was 8.99. After learning with the web-based lessons, the mean scores of the posttest were 35.06, and the standard deviation was 8.87. The results revealed that the mean scores of the posttest were higher than the mean scores of the pretest. The results indicated that the participants showed better performance at the posttest than the pretest. There were significant differences at the 0.05 level in the subjects' performance in reading skills via web-based lessons. The results indicated that web-based lessons are the useful tool to improve students' ability which is consistent to the previous studies (e.g., Arismendi, Colorado, & Grajales, 2011; Hsieh & Ji 2013; Kongphet, 2012; Osorno, & Lopera, 2012; Tsai, & Talley, 2014; Ulfiati, Kurniawan, & Failasofah, 2014). Moreover, the analysis of students' scores of each reading strategy was shown in Table 2.

Table 2 The Comparison between Mean Scores of the Pretest and the Posttest in Each Reading Strategies.

No.	Reading Strategies	The Pretest		The Posttest		Differences Value
		M	S.D.	M	S.D.	(Posttest – Pretest)
1.	Guessing Meaning from Context	36.83	2.19	65.24	2.46	28.41
2.	Scanning	45.55	2.09	66.19	1.76	20.63
3.	Making Inferences	30.50	1.50	39.84	1.70	9.36
4.	Identifying Topic and Main Idea	33.81	1.81	50.15	2.07	16.34
5.	Identifying the Pattern	48.68	2.40	69.84	2.06	20.15
6.	Skimming	40.63	1.96	57.14	2.17	16.50

According to Table 2, in the pretest, the most troublesome reading strategy which students had the lowest scores is making inferences (M = 30.50, S.D. = 1.50) However, students gained the highest scores (M = 48.68, S.D. = 2.40) in identifying the pattern strategy. In the posttest, students gained the lowest scores in making inferences strategy (M = 39.81, S.D. = 1.70). Nevertheless, students got the highest scores in posttest in identifying the pattern. If considering the improvement of before and after learning via web-based lessons, the results showed that guessing meaning from context is improved mostly (different value = 28.41), so the web-based lessons facilitate students how to guess the meaning from context well. Moreover, there are some previous studies showing that using web-based instruction can help students to guess meaning from the context effectively (Dehghanpour & Hashemian, 2015; Saitakham 2010). On the other hand, the least improvement of students' use of reading strategies is making inferences (different value = 9.36) because most of Thai students did not have good skills in making inferences (Chawwang, 2008). Overall, all reading strategies are improved because learning via web-based lessons can improve guessing

meaning from context strategy (Dehghanpour & Hashemian, 2015; Saitakham 2010), scanning strategy (Arismendi, Colorado, & Grajales, 2011) making inferences (Dehghanpour & Hashemian, 2015), identifying topic and main idea (Dehghanpour & Hashemian, 2015; Tsai & Talley, 2014), identifying the pattern strategy (Hao & Siu, 2012) and skimming (Dehghanpour & Hashemian, 2015; Arismendi, Colorado, & Grajales, 2011).

5.2 Web-based Lessons

After learning via web-based lessons, students had to take web-based exercises in order to check their understanding. The total mean scores of the web-based exercises was 72.51 out of 100. For the highest scores, lesson 1 guessing meaning from context part 1 (True-false) has got 81.51. This is because in the first class, students got motivational strategies from the teacher by making first lessons as safe, successful, and interesting, so they were attentive to study and did their best (Xiao, 2013). However, the lowest scores came to lesson 6 part 3 (drag & drop), which was 44.13. It may imply that students felt reluctant to learn, and their will to learn diminished because it was the last lesson (Dişlen, 2013).

5.3 The Questionnaire

The results from the questionnaire illustrated that students had overall highly-perceived attitudes towards learning via web-based lessons. Considering the top five responses with highest average participants' attitudes rating, the top highest statement was that they believe that web-based lessons are self-contained (Statement 4, M = 4.40, S.D. = 0.71). Moreover, they agreed that web-based lessons are a good supplementary learning (Statement 8, M = 4.27, S.D. = 0.63), web-based lessons are a useful learning tool (Statement 5, M = 4.23, S.D. = 0.73). Besides, they perceived that web-based lessons provide way to test knowledge through self-assessment (Statement 6, M = 4.19, S.D. = 0.69), and they were satisfied with web-based lessons.

In summary, the overall participants' attitudes were at high level as the interpretation (M = 4.03, S.D. = 0.71).

For the open-ended part of the questionnaire, students reported that the web-based lessons were useful, interesting, and available to learn anywhere and anytime. However, the participants claimed some problems in learning via web-based lessons such as low-speed internet connection, short time given, and the instability of system.

5.4 The Interview

The interview was conducted in order to examine students' attitudes after learning via web-based lessons in-depth. This section provided the results from the interview in terms of: (1) student's improvement after learning via web-based lessons, (2) problems found during and after learning via web-based lessons, and (3) the suggestions to web-based lessons after learning it.

The findings were summarized as follows:

Interview Question 1: How do web-based lessons support you in improving reading skills? Give some examples.

From this question, most of students agreed that reading strategies embedded in web-based lessons would help them improved their reading skills. They would apply reading strategies effectively when reading English text. Moreover, web-based lessons helped them practice reading a lot because web-based lessons provided them with "anywhere anytime learning". They can learn at their home, apartment, or dormitory where the internet connection is available. In addition, students found the lessons motivated them to learn because of the colorful font and pictures embedded in the lessons. It was convenient for them to study with automatic slideshow because they can pause the video when they can't catch the lessons.

Interview Question 2: What are the problems you found in learning via web-based lessons? How do you overcome the problems?

The top priority of the problem when learning via web-based lessons was the technological problems. The computer with low-speed internet connection caused trouble via learning web-based lessons. For example, the lessons were stopped immediately, and then students have to restart the lesson again. The second technological problem was the Moodle system provided by e-Learning KKU hosted by Khon Kaen University. Due to the KKU e-Learning administrators usually updated the server, the students got confused sometimes because the design of the page or the system was changed such as the menu which used to be the top of the page became the bottom of the page. The last problem is about the students' own problems. Due to graduate students who are considered as adult learners, they had hard time learning via technology because they had easy eyes pain for using computers for a long time.

Interview Question 3: What is/are your suggestion(s) after you learned via web-based lessons?

Some students suggested having a video explanation to describe step-by-step, so that they can review how to use web-based lessons by themselves later. Moreover, some students suggested that there should be more resources in each lesson such as websites to study more about reading strategies, or supplement exercises. They said that it would be useful to them if they read more texts. Besides, although the web-based lessons focus on reading skills, the students suggested practicing speaking and listening skills. They had an opinion that the reading passage should have a sound in order that students can practice pronouncing words and listening to the words that they can't pronounce.

6. Discussion and Conclusion

As this study conducted to develop web-based lessons to improved Khon Kaen University graduate students' reading skills, the results gained from data analysis were summarized based on two research questions as follows:

Research question 1: What are the effects of the web-based lessons on the Khon Kaen University graduate students' reading skills?

To answer research question No. 1, the findings from the pretest and the posttest and web-based exercises are taken into consideration. For the pretest and the posttest, the results revealed that the participants performed the posttest (M = 35.06, S.D. = 8.87) better than the pretest (M = 23.48, S.D. = 8.87), and the different significances were found at the 0.05 level in the participants' performance in learning reading strategies via web-based lessons (t-Test = 10.417, p-value = 0.000). For the web-based exercises, the average mean scores of students who did the web-based exercises after learning via web-based lessons was high (M = 72.51, S.D =8.56). It can be seen that students have a good understanding of the web-based lessons; as a result, they could do web-based exercises effectively. In summary, most of students had an improvement of using reading strategies, and they became skilled readers.

The findings revealed participants performed better after learning via web-based lessons. It is because students gained posttest scores better than the pretest scores, and the different significances were found at 0.5 level in the participants' performance when learning via web-based lessons. Therefore, it was confirmed that reading skills were improved after learning via web-based lessons which were congruent to the previous studies (e.g., Arismendi, Colorado, & Grajales, 2011; Hsieh & Ji 2013; Kongphet, 2012; Osorno, & Lopera, 2012; Tsai, & Talley, 2014; Ulfiati, Kurniawan, & Failasofah, 2014).

Research Question 2: What are Khon Kaen University graduate students' attitudes towards learning via web-based lessons to improve their reading skills?

To answer this question, the findings from the questionnaire and the interview were examined. The results of the close-ended questionnaire reported that most students perceived positive attitudes towards learning via web-based lessons. The students agreed that web-based lessons are a useful tool for learning and could enhance motivation to learn. The top three responses of students' attitude were "*I believe that web-based lessons are self-contained*" (Statement 4, M = 4.40, S.D. = 0.71), "*I think web-based lessons are a good supplementary learning.*" (Statement 8, = M = 4.27, S.D. = 0.63), and "*I think web-based lessons are a good supplementary learning*" (Statement 5 = M = 4.27, S.D. = 0.63) respectively. All in all, the students' overall attitudes were at high level as the interpretation (M = 4.03, S.D. = 0.71).

In addition, some students reported their attitudes in the part of open-ended question. Their response can be divided into two parts: advantages of and problems in learning via web-based lessons. They saw web-based lessons as a useful tool for learning, an anywhere anytime learning tool, and an interesting and motivated learning tool. However, a few students reported that the problems while learning via web-based lessons were low-speed internet connection, instability of the Moodle system, and short-time given. Besides, the results from the interview revealed that most students had positive attitudes towards learning via web-based lessons. They claimed that web-based lessons could enhance reading skills and increase their motivation. However, there were still some problems. For example, they found that they had difficulty in learning via web-based lessons when there was a low-speed

internet connection, and they also have their own learning problems. They suggested that the web-based lessons should provide more resources in each lesson, and listening and speaking skills should be integrated.

These findings revealed to the previous studies of Dehghanpour and Hashemian (2015) and Kongphet (2012)'s studies as web-based lessons are beneficial and motivating tools for learning. Moreover, Hsieh and Ji (2013) found that students preferred to learn via web-based lessons rather than traditional grammar-translation method. In addition, Sarica and Cavus (2009) mentioned that web-based lessons are designed to construct the courses supporting a great deal of learning strategies and often used for "anywhere anytime learning". Moreover, the present study was accorded to Tsai and Talley (2014) which is believed that web-based is self-paced practice.

7. Recommendations

Although the present study can answer the research questions, there are some limitations while conducting the research. For example, further research should be embedded more reading strategies which are necessary for academic reading such as note-taking and summarizing (Mokhtari & Reichard, 2002). Moreover, future research should be expanded by developing the web-based lessons by providing the 3D animation, interactive touch, and more graphic illustration to serve different learning styles. Moreover, video-call between teachers and students should be provided because some students need an individual consultation. Regarding the present study aimed to improve Thai graduate students' reading skills, other English skills should be also integrated in web-based lessons such as speaking and listening skills as well as language components such as grammar and vocabulary. In addition, further research should provide the retention because

it would be interesting to investigate how long the effective use of reading strategies will be retained. Therefore, the delayed posttest (e.g., one month after learning) should be used to investigate the retention of learning program and students' long-term memory.

In conclusion, web-based lessons were effective and useful for improving Khon Kaen University graduate students' reading skills. Moreover, they had positive attitudes towards learning via web-based lessons. From the findings, if students practice reading with web-based lessons a lot, it will help them to read better, and they will become skilled readers. However, the limitations and recommendations from this study also provide insight to develop research in the field of web-based instruction in language teaching and learning in the future.

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