A COMPUTER ASSISTED LANGUAGE LEARNING PROGRAM FOR ENHANCING ENGLISH READING COMPREHENSION THROUGH A TEXT STRUCTURE READING STRATEGY

โปรแกรมคอมพิวเตอร์ช่วยสอนการเรียนรู้ภาษาเพื่อเสริมความเข้าใจในการอ่านภาษาอังกฤษด้วยการใช้กลวิธีการอ่านโครงสร้างของบทอ่าน

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ABSTRACT

The purpose of this study was to investigate the effects of a Text Structure Reading Strategy, TSRS, Instruction Program, a Web-based Computer Assisted Language Learning (CALL) program for teaching text structure reading strategy, on Thai university EFL students' reading comprehension, and to examine their opinions towards the program and its usefulness. The samples consisted of 86 students with medium and low English reading proficiency who registered for Foundation English III during the summer semester of academic year 2009 at Kasetsart University Chalermphrakiat Sakon Nakhon Province Campus. They were divided into an experimental group (n = 42) and a control group (n = 44). The two groups took the pre-test, then the experimental group learned with TSRS, but the control group studied the texts from the Voice of America (VOA) Special English. Then the two groups took the post-test. The quantitative data were collected using a pre- and post-test and a questionnaire, and then were analyzed using ANCOVA, arithmetic mean, standard deviation, and percentage. A semi-structured interview was used to collect the qualitative data which were then analyzed using content analysis. The results were that the experimental group scored significantly higher than the control group in the post comprehension test ($p < .01$). The students who learned with TSRS had very positive opinions towards the program and its usefulness ($\overline{X}$ = 3.86, S.D. = .64). The findings suggest that self-paced instruction and explicit instruction in relation to students' schema activation and construction, provision of L1 help, and an appropriate order of expository text structure teaching were conducive to higher achievement in English reading comprehension. Recommendations for further research are also provided.

KEYWORDS : Computer assisted language learning (CALL), Web-based instruction, Text structure reading strategy, Reading comprehension, Expository text

บทคัดย่อ

การวิจัยครั้งนี้ มีจุดมุ่งหมายเพื่อศึกษาผลของโปรแกรมคอมพิวเตอร์ช่วยสอนผ่านเว็บที่สอนกลวิธีการอ่านโดยใช้โครงสร้างของบทอ่าน (Text Structure Reading Strategy Instruction Program) ที่มีต่อความเข้าใจในการอ่านภาษาอังกฤษของนิสิตที่เรียนภาษาอังกฤษในฐานะภาษาที่สอง และเพื่อศึกษาความคิดเห็นของนิสิตที่มีต่อโปรแกรมและประโยชน์ของโปรแกรม กลุ่มตัวอย่างเป็นนิสิตมหาวิทยาลัยเกษตรศาสตร์ วิทยาเขตเฉลิมพระเกียรติ จังหวัดสกลนคร ที่มีความสามารถทางภาษาอังกฤษในระดับปานกลางและอ่อนที่เรียนวิชาภาษาอังกฤษพื้นฐาน 3 ในภาคฤดูร้อน ปีการศึกษา 2552 จำนวน 86 คน แบ่งเป็นกลุ่มทดลอง (42 คน) และกลุ่มควบคุม (44 คน) เมื่อทั้งสองกลุ่มทำการทดสอบก่อนเรียนแล้ว กลุ่มทดลองได้เรียนด้วยโปรแกรม TSRS ส่วนกลุ่มควบคุมศึกษาบทอ่านจาก Voice of America (VOA) Special English หลังการทดลองให้ทั้งสองกลุ่มทำแบบทดสอบหลังเรียน เครื่องมือในการเก็บรวบรวมข้อมูลประกอบด้วย แบบทดสอบก่อนเรียนและหลังเรียน แบบสอบถามความคิดเห็นเกี่ยวกับโปรแกรม TSRS และการสัมภาษณ์แบบกึ่งโครงสร้าง วิเคราะห์ข้อมูลโดยการวิเคราะห์ความแปรปรวนร่วม (ANCOVA) การหาค่าเฉลี่ย ค่าเบี่ยงเบนมาตรฐาน และค่าร้อยละ และใช้การวิเคราะห์เนื้อหาสำหรับข้อมูลจากการสัมภาษณ์ ผลการวิจัยพบว่า (1) นิสิตกลุ่มทดลอง มีคะแนนทดสอบความเข้าใจในการอ่านภาษาอังกฤษหลังเรียนสูงกว่านิสิตกลุ่มควบคุม อย่างมีนัยสำคัญทางสถิติ ที่ระดับ .01 และ (2) นิสิตมีความคิดเห็นต่อโปรแกรมและประโยชน์ของโปรแกรมในระดับที่ดีมาก ($\overline{X}$ = 3.86, S.D. = .64) ผลการวิจัยชี้ว่า การสอนกลวิธีการอ่านด้วยการใช้โครงสร้างของบทอ่านที่สอดคล้องกับความสามารถทางการเรียนรู้ของผู้เรียน โดยมีการกระตุ้นความรู้เดิม สอนโครงสร้างของบทอ่านที่เหมาะสมจากง่ายไปยาก และใช้ภาษาแม่ของผู้เรียนเป็นตัวช่วย ส่งผลให้มีผลสัมฤทธิ์ทางความเข้าใจในการอ่านภาษาอังกฤษสูงขึ้น มีข้อเสนอแนะเพื่อการวิจัยเพิ่มเติม

คำสำคัญ : คอมพิวเตอร์ช่วยสอนการเรียนรู้ภาษา การสอนผ่านเว็บ กลวิธีการอ่านโดยใช้โครงสร้างของบทอ่าน ความเข้าใจในการอ่านภาษาอังกฤษ บทอ่านเชิงบรรยาย

Introduction

The ability to comprehend English expository texts is very important for all Thai university EFL students. They need to understand textbooks, articles, or magazines written in English to acquire knowledge and gather information for both their academic success and future career (Wei, 2005). The majority of Thai university EFL students, however, who are not English majors, including the students at Kasetsart University Chalermphrakiat Sakon Nakhon Province Campus, have trouble using English, especially in terms of reading skills. In fact, a large number of Thai university EFL students face difficulties reading English expository texts. This negatively affects their study, and consequently their academic success. Researchers investigating the reading ability of Thai students found that most Thai university EFL students have low to medium English reading proficiency (Rattanawanitpun, 1999; Chinwonno, 2001; Anusornorakarn, 2002). Also research investigating the causes of the reading problem found that among major causes of the problem were teachers' use of inappropriate and unsuccessful teaching methods, and a lack of reading strategy knowledge on the part of the students (Sukamolson, 1992, Adunyarittigun, 1998, Vanichakorn, 2003). As stated by Ekwall and Shanker (1988), more than 90 percent of reading failures could or should be blamed on poor teaching. This is in line with the observational studies by Durkin (1978-1979) and Pressly and Wharton-McDonald (1997) which found that teachers regularly assigned and tested comprehension, but rarely

taught the strategies needed by their students. That is why many students enter higher education underprepared for the reading demands that are placed upon them. When pressed to read, they often select ineffective and inefficient strategies with little strategic intent. Often, this is due to their low level of reading strategy knowledge (Dreyer and Nel, 2003). To address this problem, an effective reading strategy instruction must be urgently carried out to help the students comprehend English expository texts.

Expository text is the text which is written to present factual information or ideas (Spafford, Pesce, and Grooser, 1998). It may have the following structures: cause/effect,compare/contrast,problem/solution, description, and sequence (Harris and Hodges, 1995). Training learners in the text structure strategy (Meyer and Poon, 2001; Meyer and Rice, 1984) involves teaching how to detect and how to utilize the structure the author used to organize ideas in a text to facilitate one's reading comprehension and recall. Research has shown that reading strategies can be effectively taught to help poor EFL students comprehend English expository texts (Troyer, 1994; Leon and Carretero, 1995; Williams and Stafford, 2005). One of the highly effective reading strategies to improve EFL students' reading comprehension is text structure strategy (Raymond, 1993; Rhoder, 2002; Leon and Carretero, 1995; Mayer and Poon, 2001). In this study, three expository text structures were selected: sequence, compare/contrast, and cause/effect. The students were taught to identify signal words used in each text structure and use the knowledge of text structure as a reading strategy to help comprehend English expository texts.

Teaching text structure reading strategy to the students at Kasetsart University Chalermphrakiat Sakon Nakhon Province Campus to help improve their reading comprehension of English expository text would be of great benefit. However, in order to ensure the effectiveness of the text structure reading strategy instruction that is tailored to the proficiency level of the students, a method of strategy instruction that meets the needs of the students and promotes their active learning and motivation, as well as the selection of authentic texts suitable to their levels, should be considered carefully. Nowadays, the Internet, the latest and most popular form of Computer Assisted Language Learning (CALL) is widely and effectively used to teach languages and language learning strategies, in particular, reading strategy instruction (e.g. Singhal, 2001; Johnson, 2005; Cole, 2005; Theodorou, 2006). It is the most important technological innovation that can easily be integrated into every field of people's lives, including language learning and teaching. The Internet as well as WWW is new technology which is used as a communication facilitator and it is an instructional delivery medium. Considering the objectives of courses and level of students, the Internet is mostly used in the university environment as the tool to learn foreign languages. Besides, the Internet is now acting as another motivator for students in higher education. Higher educations institutions, mainly at university level, are more involved in online language learning and teaching in this 21st century. Kasetsart University Chalermphrakiat Sakon Nakhon Province Campus is one of the three provincial campuses of Kasetsart University which has taken a leading role in the use of Internet and WWW for learning and teaching. However, the students there are mostly of medium to low English reading proficiency as determined by their previous English grades.

The researcher, thus, aimed to develop a text structure reading strategy instruction program (TSRS), a Web-based CALL program for enhancing English

reading comprehension of the students through text structure reading strategy instruction. In doing so, the researcher used authentic texts from the VOA Special English as text structure strategy practice texts. The researcher also wished to investigate the opinions of the students towards TSRS and its usefulness. The results from this study will bear a significant contribution to the theoretical implication. It can not only facilitate the development of L2 reading strategy instruction research, but also provide evidence for the relationship between reading comprehension and text structure strategy use. The theoretical implication of the findings from this study could contribute to constructing an instructional framework for English as a foreign language reading instruction through CALL in Thailand. Two research questions guided this study: (1) What are the effects of TSRS on Thai university EFL students' English reading comprehension? (2) What are the students' opinions towards TSRS and its usefulness? In this connection, it was hypothesized that after training with TSRS, the students will have significantly higher scores of reading comprehension test than before the training, and the students who learn with TSRS will have very positive opinions towards the program and its usefulness.

Methods

A quasi-experimental pre-test and post-test with control group design (Marion, 2004) is used in this study. There are two groups, one experimental group and one control group. The experimental group (n = 42) learned text structure reading strategy with the TSRS program for 2 hours a day, 3 days a week. The control group studied 6 texts printed out from the Voice of America (VOA) Special English (http://www.voanews.com/specialenglish) in their regular classroom. The same 6 texts were used as practice texts for the experimental group. A pre-test was administered to the two groups before the treatment. After the treatment, a post-test was administered to the two groups to determine if there was a significant difference of the mean score of the post-test between them. After the post-test, a questionnaire (in Thai) was administered to the experimental group, then a semi-structured interview was conducted with every participant in the experimental group. The experiment took place in a computer laboratory of Kasetsart University Chalermphrakia Sakon Nakhon Province Campus during the summer semester of academic year 2009, from 16 April to 18 May, 2009.

Samplings

The samples were 86 students purposively selected from the total 118 students who registered for Foundation English III in the summer semester of academic year 2009, and consented to participate in the study. Then, they were administered a personal data questionnaire, asking about their ages, major fields, faculties, previous English grades, computer and Internet skills, FCE test experience, and text structure knowledge. They were then administered a pre reading comprehension test (30 total scores) for one hour. At last, 32 out of 118 students were excluded from the study because they gained more than 20 scores from the pre-test, thus being regarded as having high reading proficiency. 86 students, 24 male (27.9%), and 62 female (72.1%), were, therefore, selected for the present study. Most of them had very little or no knowledge of expository text structures and medium to low reading proficiency. They were then randomly divided into an experimental group and a control group.

Instruments

Pre-Test and Post-Test:

The pre-test and post-test were adopted from the reading comprehension section of a standardized test: the First Certificate in English (FCE) Test (Cambridge University Press, 2008). There are 4 tests in the set of FCE test, released in 2008. In each test, there are sections called Paper I, II, III, IV, and V. Paper I is a reading comprehension test consisting of 30 items based on a reading selections. The questions test candidates' understanding of the general idea, the main points, specific details, the structure of the text and specific information. In this study, Paper I of Test 1 (Cronbach's Alpha = .75, based on the pilot study) and Paper 1 of Test 3 (Cronbach's Alpha =.73, based on the pilot study) were used as the pre-test and post-test respectively.

TSRS:

TSRS was designed and developed by the researcher. It is a Web-based CALL program which delivers instruction of text structure reading strategy focusing on three expository text structures: sequence, compare/contrast, and cause/effect. The program consists of 4 lessons. Each lesson is designed to follow the same format which comprises 'main study', 'self-test', and 'practice exercises'. Lesson 1 focuses on an overall introduction to text structure strategy. Lesson 2 focuses on the sequence structure; Lesson 3 compare/contrast; and Lesson 4 cause/effect respectively. Explicit instruction of the text structure strategy is used in each lesson with Thai translation link and instant online dictionary provided as a scaffold. All the learning materials in TSRS are in English. However, the students can use either the Thai translation or the online dictionary just in case they do not completely understand the lesson. In the practice exercise section, no Thai translation is provided. Only an online dictionary is provided. This is for the purpose of meeting halfway the L1 use (Chamot, 2005). TSRS was tested for its efficiency through 3 trials: individual trial (1:1); small group trial (1:10); and field trial (1:100). To validate the effectiveness of TSRS, students' achievement scores of the exercises and tests, which were derived from self-tests, practice exercises, and post-reading comprehension test, were determined for the efficiency of TSRS based on the criteria of 80/80 standard level (Brahmawong, 1978). Achievement scores of the exercises and the tests were calculated by using E1/E2. The results from field try-out showed 81.30/84.24. This was above the criteria of 80/80, indicating that TSRS met the prescribed criteria of 80/80, hence being appropriate for use in this study.

TSRS Questionnaire:

The questionnaire (in Thai, Conbrach's Alpha = 0.83) investigating the students' opinions towards TSRS and its usefulness was administered online. The questionnaire consisted of 14 close-ended items and 1 open-ended item. The closed-ended items had statements about the students' general opinions towards TSRS and its usefulness in Likert-type (strongly agree=5, agree=4, uncertain=3, disagree=2, strongly disagree=1) and aimed to measure the degree of students' opinions towards TSRS and its usefulness. The open-ended item asks about the students' free comments on the program.

A Semi-Structured Interview:

A semi-structured interview in Thai, recorded using a digital recorder, was conducted to investigate the students' opinions towards TSRS and its usefulness. All the students in the experimental group were interviewed based on a group basis, 4-5 students at a time.

Data Analysis

Data from the Pre-and Post-Tests:

Following the data collection, a t-test was conducted to compare the pretest means of the control group with those of the treatment group to determine if further analysis should be conducted using analysis of covariance (ANCOVA). The independent-samples t-test was a suitable statistical tool for comparing the two means of different groups who received different treatments (Pavkov and Pierce, 1998). The level of statistical significant difference (α) was set at .05. The post-test mean scores of the students were analyzed to see the effects of the intervention. ANCOVA was used to analyze the post-test scores because of the equivalence of variance and homogeneity slope assumption, as well as the homogeneity of regression of both groups before the treatment were found.

Data from the TSRS Questionnaire:

Descriptive statistics analyses were conducted to demonstrate the students' responses to the TSRS questionnaire. The data from the questionnaire were calculated for arithmetic means. The means are used to interpret the student's opinions towards TSRS and its usefulness based on the following criteria:

Table 1 Criteria for Interpreting the TSRS Questionnaire Rating Scale

Means	Interpretation
1.00-2.33	The students' opinions towards TSRS are negative.
2.34-3.67	The students' opinions towards TSRS are positive.
3.68-5.00	The students' opinions towards TSRS are very positive.

$\overline{X}$ = 1.00-2.33, meaning students' negative opinions towards TSRS and its usefulness; $\overline{X}$ = 2.34-3.67, meaning students' positive opinions towards TSRS and its usefulness; and $\overline{X}$ = 3.68-5.00, meaning students' very positive opinions towards TSRS and its usefulness. The SPSS program was used for statistical analysis of all the quantitative data.

Data from the Semi-Structured Interview:

Students' interviews were recorded and then transcribed. The interview data were analyzed using two types of coding: (a) open coding (theme identification), and (b) axial coding (Strauss and Corbin, 1990). Open coding refers to the process of breaking down, examining, comparing, conceptualizing, and categorizing data (Strauss and Corbin, 1990). During open coding (theme identification), the researcher reads and re-reads entire interviews to identify salient themes in data and categorize the data around the themes. Axial coding refers to a set of procedures whereby data are put back together in new ways after open coding, by making connections between a category and its subcategories (Strauss and Corbin, 1990). During axial coding, the researcher refined and narrowed categories by relating them to subcategories and re-categorized the data around the refined/narrowed themes. Original quotes from students were used as evidence to support these themes.

Findings

The first research question asks: What are the effects of TSRS on Thai university EFL students' reading comprehension? This question was investigated quantitatively based on the results of pre-and post tests. Overall, the results show that the reading comprehension of the students in the experimental group differed from

Table 2 Means and Standard Deviations of Experimental and Control Groups on the Post-Test

	Experimental group (n=42)		Control group (n=44)	
	Mean	S.D.	Mean	S.D.
Pre-test	11.10	3.043	11.27	3.399
Post-test	14.05	3.177	11.91	3.845

Adj. mean Experimental group = 14.12, Control group = 11.83

Table 3 Summary of ANCOVA of the Post-Test Scores with Pre-Test as a Covariate

Source	SS	df	MS	F	Sig.
pretest	653.735	1	653.735	137.087	.000
group	112.780	1	112.780	23.650	.000
Total	15578.000	86			

the reading comprehension of the students in the control group after learning with TSRS, as shown in Table 2.

However, when the influence of the covariate (Pre-Test) was controlled, ANCOVA was computed to determine if there was a significant difference of the post-test mean score between the two groups. It was found that the experimental group scored significantly higher than the control group on the post-test, as shown in Table 3.

Table 2 shows that there was a significant effect of the covariate (Pre-Test) on the dependent variable (post-test), $p<.001$. However, with the pre-test as a covariate, it was found that the experimental group scored significantly higher than the control group, $F(1, 83) = 23.650$, $p = .000$. Regarding the effects of TSRS on Thai university EFL students' reading comprehension, hypothesis 1 was, consequently, accepted.

Research question two asks: What are the students' opinions towards TSRS and its usefulness? To answer this research question, the students' responses to the TSRS questionnaire were analyzed. Regarding the students' opinions towards TSRS and its usefulness, the students' responses to the 14 items in the questionnaire obtained a lowest mean of 3.07, a highest mean of 4.36, and a mean of 3.83 from all items. Although the average mean of 3.83 from all items was not considered a high rating, the students' responses showed a very positive opinions than negative in all categories. In general, a considerable percentage of students expressed that TSRS was new ($\overline{X}$ = 4.36), TSRS lessons and practice exercises had appropriate presentation format ($\overline{X}$ = 4.12), and that is why they liked it ($\overline{X}$ = 4.05). Most students viewed TSRS as useful for advanced English reading comprehension ($\overline{X}$ = 4.26) because it helped them locate the main idea in a text more easily ($\overline{X}$ = 4.02). Interestingly, after learning with TSRS, many students wanted to learn or practice other reading strategies, and felt becoming more interested in reading English ($\overline{X}$ = 3.90). The open-ended statement in the questionnaire yielded the students' responses categorized into general comments on and benefits of TSRS. The students' comments included, for example, integrating of TSRS to a regular English class,

increasing the time to spend on learning, and using even easier vocabulary. The benefits of TSRS included learning how to find main ideas, being a self-study technique, and enjoyable way of learning to read. As a result of the findings, hypothesis 2 was accepted, confirming that the students had very positive opinions towards TSRS.

The results from the semi-structured interview were analyzed and finally summarized into three major themes: overall perceptions about TSRS, usefulness of TSRS, and suggestions for further development of TSRS. The overall perceptions about TSRS included the design, materials used, and uniqueness of TSRS. Most students found TSRS conveniently and appropriately designed, materials suitable for their proficiency level, different from previous online English learning programs they had used, for example immediate feedback and Thai translation help. The usefulness of TSRS was seen in five sub-themes including new vocabulary and knowledge, more reading practices, being easier to locate ideas and main ideas in texts, using signal words, and increased interest in English learning. On the suggestion themes, the following sub-themes emerged: Making it applicable to other English courses, adding more interesting cartoon animations, adding an instant dictionary, adding more translation, and using easier vocabulary. On the whole, not many students made suggestions in a way showing that TSRS was not conducive to improved English language learning and teaching.

Discussion

The results found in this study show that TSRS, a Web-based CALL program for teaching text structure reading strategy, can significantly improve Thai university EFL students' reading comprehension of expository texts. The findings confirm that a Web-based CALL can be appropriate for teaching text structure strategy to medium and low Thai university EFL readers. The significantly increased reading comprehension test scores of the students might be interpreted thus. **Firstly,** TSRS used self-paced and explicit instruction in delivering the text structure strategy lessons. Learning materials that are suitable to students' learning pace not only result in increased learning, but also increased motivation (Greenfield, Brannon, and Lohr, 1996; Taylor et al., 1999). Through explicit instruction, medium and low EFL readers in this study could fully understand the lessons, hence their better performance in the reading comprehension post-test (Carrier, 2003; Chamot, 2004, 2005; Cohen, 1998, 2003). **Secondly,** the role of schema theory is highlighted and strongly supported in this study. For medium and low EFL readers, with enough and appropriate background knowledge, they can comprehend the main idea of texts more easily (Grabe, 1991). Chun (2000) posits that comprehension occurs as a result of the interaction of four types of schemata which include knowledge about text, knowledge of the world, knowledge of strategies, and knowledge of the language. Knowledge about text is known as formal schema. In TSRS, the activation of formal schema, in the form of text structure knowledge stored in the students' long term memory, occurred while the students did practice exercises and subsequently the post-test. **Thirdly,** the three structures of expository text - sequence, compare/contrast, and cause/effect-were at the appropriate learning order to start for medium and low EFL learners. This made their learning of the text structure reading strategy easier (Kinder and Bursuck, 1991). **Finally,** the provision of L1 translation in the TSRS lesson might help explain the students' significantly increased reading comprehension test scores. In this study, L1 translation, one of the most popular and effective forms of L1 use, was provided as a learning tool for L2 acquisition (Nation, 2003; Forman, 2005; Noytim,

2006; Cianflone, 2009). Previously, research in L1 use in support of L2 learning was conducted in a classroom-based setting (Schweers, 1999; Nearly, 2003). However, little research was conducted in a Web-based CALL context (Noytim, 2006). This study, therefore, filled the gap in research investigating the effect of L1-assisted text structure reading strategy instruction via the Web on EFL students' reading comprehension.

Regarding the students opinions towards TSRS and its usefulness, it was found that they had very positive opinions towards learning with the program, and considered it useful in many ways. Advanced English reading comprehension and increased interest in learning English are among the benefits. Chappelle (1998) mentions that a good CALL program should provide the opportunity for L2 learners to notice their errors. Feedback is a good learning tool in regard to this SLA principle. The findings of this study supported using feedback as a learning tool (Peat, Franklin and Lewis, 2001). TSRS provides immediate and informative feed-back. Throughout all the lessons and practice exercises, the students were informed whether their answers were correct or incorrect, in an immediate and informative feedback in L1. This is one source of motivation that keeps the students engaged in the learning (Adler-Kassner and Reynolds, 1996; Arroyo, 1992). Providing L1 informative feedback to support L2 learning on the Web-based CALL setting is, therefore, a new notion confirmed by this research. The practice texts selected for the present study might also help to explain the students' increased motivation in learning which, in turn, led to their very positive opinions towards the program and its usefulness. Research shows that students that have interests are engaged, and that engaged thinkers and readers are better students (Guthrie and Humenick, 2004). One way to engage the students in learning and reading in TSRS is to provide texts with appropriate difficulty and interest. Texts from the VOA Special English were used in TSRS practice exercises for their being current affairs in the fields of science, agriculture, technology, culture, and medicine, being written in simple but highly informative English, and having pictures to help get the message across. It is, therefore, not surprising to find that after learning with TSRS, many students wanted to learn English more, as indicated by their interview responses. In conclusion, the findings in this study in regard to students' very positive opinions towards learning with CALL seemed similar to the results found in Usun's (2003) research. Results in other related research (Cole and Hilliard, 2006; Sung, Chang, and Huang, 2008; Yang and Chen, 2007) also indicated that learners have positive opinions as found in this study.

Implications and Recommendations

Depending on the discussion, some implications can be noted for reading instruction in the Thai university EFL setting. Thai university EFL teachers should teach text structure reading strategy in their regular reading classes. In so doing, only expository texts with easy and clear structures, such as sequence and compare/contrast, should be first selected and taught. There should be schema activation and schema construction of text structures at the beginning of a reading comprehension class, the pre-reading activities that are very important for facilitating students' reading comprehension. The construction of schema is also a necessary pre-reading activity that enables students to acquire the new information in the assigned reading text. Therefore, both the activation and construction of students' text structure schema support their cognitive processes of text information. Also, at the university level, more Web-based CALL programs for teaching text structure strategy focusing on expository

text structures should be developed and integrated into every regular Foundation English course. Authentic texts from various sources such as online newspapers and magazines should be used in this case. In addition, it should be more beneficial if the students could have a role to play in developing such programs, rather than just being learners or users. Nowadays, many students have good computer and Internet skills. If the teachers can assign some online tasks, for example having students select their favourite text structure and design and develop a Web-based CALL lesson based on the structure, they will learn better the text structure reading strategy and become fluent in expository text structures. The teachers can use the students' work as an authentic assessment of their text structure reading strategy knowledge as well. In teaching the text structure strategy via the Internet, explicit instruction should be used with clear and enough examples including graphics or pictures provided. Cartoon animation should be added to make it more interesting. Feedback in L1 should be provided to ensure the students' learning. Lastly, when teaching expository text structures, teachers could start with any of the five structures: sequence, compare/contrast, cause/effect, description, and problem/solution, but they must make sure that the students completely understand the strategy and how to identify each text structure.

While the findings are very promising, there are limitations in this study. The main limitation was that only three expository structures were taught in this study: sequence, compare/contrast, and cause/effect. In addition, there were only immediate post-test data collected in the study. The post-test did not take place very long after training with TSRS. Without a delayed post-test (e.g., one week later) there is no way of knowing whether the use of text structure reading strategy will be retained. Another limitation was the purposive sampling used for selecting the participants with medium and low English proficiency. These students were doing Foundation English III course during the time of the study. The results, therefore, may not be applicable to the students with medium and low English proficiency who belong to other foundation English courses.

In light of these limitations, the findings of this study should be considered as suggestive rather than conclusive. Further research should address these limitations and replicate the results of the study to increase external validity and generalizability. For example, the present study did not determine if the medium and low EFL readers in TSRS training were significantly different in their opinions towards the program. Future research should determine if opinions of the students with different proficiency level towards a Web-based CALL program are significantly different or not. Moreover, future research should investigate if there is difference in using L1 translation between medium and low EFL readers. If so, is there a significant difference in the frequency of use, or not? Future research should also investigate the retention of the text structure reading strategy knowledge by means of a long and delayed reading comprehension post-test. However, in the interim, there is certainly enough empirical evidence from this study to encourage EFL reading researchers and educators to consider a Web-based CALL program like TSRS as a tool to improve the reading comprehension and motivation outcomes of Thai university EFL students who are of medium and low English readers.

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