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# HARNESSING THE POWER OF K-W-L TO HELP STRUGGLING EFL READERS BECOME STRATEGIC READERS

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**Abstract**

This study aimed to investigate the effects of KWL to help struggling college EFL readers to read informational texts. Thirteen Thai college second-year students received instruction on how to use KWL through a process of teacher modeling. They were engaged in activating their background knowledge and interest, generating their own questions, and discussing the texts with peers and teachers before, during and after reading. Four reading tests and interviews were used to investigate the students' reading performance. The results revealed that the struggling readers did improve their reading performance over time and had active engagement in reading the informational texts. They also gained more confidence in their own reading. Implications of this research include explicit instruction of the KWL method with an emphasis on its value and utilizing students' first language as a mechanism for discussing and expressing students' understanding of the texts.

Struggling EFL college students have to handle a lot of reading demands, especially informational texts. Teachers have attempted to develop the students' ability to read and make use of English informational texts. However, some complain that their instruction is not producing successful EFL readers. This lack of success is not due to any particular pedagogical failure. In fact, the teachers have done a very good job in teaching. There is a need to look more critically at other factors which account for this. For instance, concepts presented in the text are dense (Stetson & Williams, 1992); struggling EFL readers have low proficiency in English which prevent them from making effective use of graphophonic, syntactic and semantic cues in reading (Bernhardt, 1991; Kang, 1994; Grabe, 2009); and they lack schemata availability (Carrell & Eisterhold, 1989; Slater, Graves & Piche, 1985) or certain background knowledge that native speakers may take for granted (Kang, 1994). Most importantly, they are not able to make use of reading strategies effectively to make meaning from text and to solve reading problems (Adunyarittigun, 2005).

The ultimate goal of teaching reading is to teach students to become self-regulated readers. To do so, Paris, Lipson and Wixson (1983) insisted that students have to be taught three types of strategic knowledge: declarative knowledge, procedural knowledge and conditional knowledge. Students need to be introduced to useful reading strategies, receive training in how to use specific reading strategies and be aware of why and when to use strategies (Gordon & Pearson, 1983; Raphael & Pearson, 1985; Raphael & McKinney, 1983; Palincsar & Brown, 1984; Brown & Palincsar, 1987). Therefore, it is obvious that the development of students' self-regulating behavior leading to comprehension of the text is very important to struggling readers (Paris & Flukes, 2005). Next, an important question about teaching reading strategies is "How should reading strategies be taught?"

Pearson and Gallagher (1983) proposed a model of explicit reading instruction. In this model, teachers and students have various levels of responsibility for completing tasks. Teachers initially

take all of the responsibility for instructing, modeling and demonstrating specific reading strategies. They gradually relinquish their responsibility for task completion to the students. Students practice those reading strategies and apply the strategies for their reading.

These struggling readers have a repertoire of reading strategies and also know what strategies to use, yet they do not know how to implement them effectively and how to orchestrate their use with strategies (Adunyarittigun, 2005). Paris and his colleagues (1983) explicitly stated that –it is not sufficient to know about strategies, but a reader must also be able to apply them strategically‖ (p. 19). Many reading scholars have confirmed that reading comprehension strategies must be taught explicitly (Pearson & Gallagher, 1983; Gordon & Pearson, 1983; Raphael & Pearson, 1985; Palincsar & Brown, 1984; Rosenshine & Meister, 1994; Adunyarittigun & Grant, 2003). Therefore, it is essential to teach these struggling readers how to make effective use of reading comprehension strategies.

To maximize strategy instruction for struggling EFL readers, teachers need to take Vygosky's notion of the Zone of Proximal Development (ZPD) (1978) into account. Learning occurs by moving from the actual level of competency to the potential level. The former characterizes the learners' ability to perform a certain task independently of another person. The latter is the level of competency that the learners can carry out with assistance or mediation of more capable individuals. Development of learning is mediated through dialogues of the two parties (Lantolf & Appel, 1994). More capable individuals or teachers provide strategies to help the learners deal with a task through social interaction until the learners internalize the strategies. They can also assist the learners by means of questioning, giving feedback and providing a structure for thinking, mental operations or understanding (Gallimore & Tharp, 1990). The responsibility for completing a task is gradually transferred from more capable individuals to the learners. The learners gradually assume

more responsibility for performing and completing the task independently.

To support the improvement of struggling college EFL readers' comprehension, teachers need to use instructional practices and teach comprehension strategies that help the readers build reading competence and skills. Ogle (1986) developed KWL (What I Know-What I Want to Know-What I Have Learned), as an instructional method designed to teach native English speakers cognitive strategies that lead to improved reading comprehension. Students are taught and directed to a three-step procedure of KWL. That is, they are actively engaged in activating their background knowledge relevant to the text they are reading, generating questions as a means of establishing their purpose of reading, and reviewing what they have learned. Furthermore, the instruction takes place within the context of dialogue between the expert - either teachers or more capable readers - and less capable readers. The teacher or expert reader is initially responsible for directing students to the strategies and guiding their practice in applying the strategies. Later, the responsibility for implementing the strategies is gradually transferred to the students.

KWL has been ubiquitous in L1 reading classrooms (Ogle, 1986, 1991; Carr & Ogle, 1987; Mandeville, 1994; McAllister, 1994; Bryan, 1998; Sampson, 2002; Szabo, 2006; Hilden & Jones, 2012). Surprisingly, there is little research in L1 reading pedagogy to support this method (Hilden & Jones, 2012). A recent study by Stahl (2008) did not show a statistically significant difference in learning outcomes resulting from the KWL method; the Directed Reading Thinking Activity (DRTA) method; and the Picture Walk method.

Interestingly, Siribunnam and Tayraukham (2009) investigated the effects of the ―7-E learning cycle,‖ a modified version of the learning by inquiry method initiated by Eisenkraft (2003); KWL; and conventional instruction on analytical thinking skills, in learning achievement in science and attitudes toward chemistry learning of 11th graders in Thailand. The results revealed that the students in the

KWL group significantly outperformed those in the conventional instruction group in analytical thinking.

However, there is a paucity of research investigating the effects of KWL on improving struggling college EFL readers' comprehension. Research is also needed to clarify the degree to which the KWL strategy instructional approach improves struggling college EFL readers' reading performance and their strategy use.

This study was designed to investigate the effects of KWL on struggling Thai college EFL readers. The specific research questions that guided this study are as follows:

1. What are the effects of training in KWL on struggling Thai college EFL readers' accuracy in responding to reading comprehension questions on different testing occasions?
2. What are the effects of training in KWL on struggling Thai college EFL readers' use of reading strategies?

**Participants**

***Students*:** An intact class of 13 Thai second-year college students in the Faculty of Science and Technology at a university in the central region of Thailand participated in the study. These students were enrolled in an English reading class designed to introduce students to skills used in reading informational texts.

In this group, 38.46% (n=5) of the students were male, and 61.54% (n=8) were female. The students in this group had experienced learning English as a foreign language through formal education for approximately 13 years. At the beginning of the study, the students were administered the Nelson-Denny Reading Test to obtain baseline data on their reading ability in English and Reading in English Questionnaire on their metacognitive conceptualizations of reading. The result revealed that their grade equivalent scores on the reading test ranged from 4.1 to 6.4 (mean = 4.4, SD = 0.66). Their standardized scores ranged from 140 to 167 (mean = 154.46, SD= 7.0). The participants' ability to read in English was not proficient enough to make use of English resources at the college level. In

addition, they also perceived themselves as poor readers of English (mean = 2.85, SD = 0.80).

***Teacher*:** Ms. Wong (a pseudonym) held a BA in English and an M.Ed. in TESOL. She had at least 8 years of teaching experience. In spite of not having special training in teaching reading to EFL students, Ms. Wong provided her students with explicit reading strategy instruction for enhancing comprehension (such as finding main ideas, guessing word meaning from contexts, and searching for word referents) and instruction on language structures essential to understand the reading passages. Ms. Wong believed that good reading instruction for EFL students was providing students with plenty of opportunities for discussing texts and interacting with one another in groups while reading or completing reading tasks. Still, she was not fully satisfied with her teaching and attempted to try new approaches to promote reading success for the struggling EFL students in her class.

**Instruments**

*Nelson-Denny Reading Test (Form H)*: The Nelson-Denny Reading Test which had been successfully used to assess Thai EFL readers' reading abilities (Adunyarittigun, 1997; Adunyarittigun & Grant, 2000) was used to assess student reading ability in reading English in this study. It was recommended for EFL readers to take 56 minutes to complete the reading test (Brown, Fishco & Hanna, 1993). Raw scores, standardized, and grade-equivalent scores were obtained.

*Reading in English Questionnaire*: A questionnaire was devised to elicit relevant demographic information from the participants. It was also used to elicit the participants' metacognitive conceptualizations of their silent reading strategies in English. The questionnaire was developed based on Carrell's Metacognitive Questionnaire (1989). Using a 1-5 Likert Scale (5 = strongly agree, 1 = strongly disagree), the participants rated thirty-three statements regarding their silent reading strategies. Items on the questionnaire included: 1) five statements measuring confidence in their reading abilities; 2) five statements

pertaining to what they do in order to deal with any reading difficulties; 3) seventeen statements concerning their perception of effective reading strategies; and 4) six statements regarding their perception of what makes texts difficult to read. The items were translated into Thai for the students.

*Reading Passages*: Three reading passages were drawn from a reading textbook by Richards and Eckstut-Didier (2003) and one from a popular magazine. These passages were considered appropriate for Thai college EFL learners because they had been field-tested and used with Thai EFL college students in Ms. Wong's previous classes. Each reading consisted of approximately 600 words. One was used when the teacher demonstrated to the students how to do KWL and the rest were used when the students did their reading in groups.

*KWL Table*: A KWL table consists of three columns - K: What do you know?, W: What do you want to know?, and L: What did you learn? The students used the KWL chart to record their predictions and any information they know about the text before they read, their self-generated questions and their findings or answers to the questions. This chart was used to view how the students made use of the strategies to read and understand the articles.

*Reading Tests*: Four reading tests were developed from 600-word informational articles selected from popular magazines. The tests included 3 multiple-choice questions and 9 open-ended questions. Those questions were constructed to assess the students' abilities to identify main ideas, to make use of context clues to figure out word meanings, to make inferences, and to complete an outline of one or two paragraphs. It took 1 hour and 30 minutes to complete the test. The tests were administered in the fourth week of each month.

*Interviews*: Interview questions were developed for the purpose of engaging students in conversation designed to probe their strategy use before, during and after reading. The researchers asked the students individually to explain what they thought about their own reading, what they did before, during and after reading and what they thought about the KWL method. The students were allowed to provide their responses

in Thai due to their low confidence in speaking English. The interviews were recorded and transcribed later. It took about 20-30 minutes for each interview.

**Procedure**

Students received instruction to improve their reading according to the reading course requirements. For example, they were taught how to identify main ideas; to guess word meanings from context clues; to make inferences; to use dictionaries to work out word meanings; and to express their understanding of what they read in the form of an outline. The students were provided instruction in two sessions a week, for one hour and thirty minutes each. In addition, the KWL approach was also introduced at the beginning of the semester. The students were taught where, when, and how to utilize the strategies. The teacher also demonstrated KWL step by step. Each step was directed by the following questions: What do you know? (K), What do you want to know? (W), and What did you learn? (L). At the K-step, the students were asked to skim an informational article, to think about what they knew about the article, and to make predictions about the article. Then, at the W-step they were asked to generate questions of what they wanted to know about the article. While reading, they were trying to search for information in the article in order to answer their self-generated questions. After reading and discussing the article, the students reviewed what they learned from the article and tried to answer the questions appeared in column W. At the beginning, the teacher would provide guidance and also demonstrate how to utilize each strategy step by step, which was mediated through dialogue between the teacher and the students. When the students encountered any difficulties, the teacher would provide support in the form of asking questions to challenge students to think and to solve the problems for themselves, and also praising and giving feedback about the quality of students' predictions, self-generated questions and summaries. The responsibility for the tasks was gradually transferred from the teacher to the students and was shared by all group members later.

Their predictions, self-generated questions and the information they learned were recorded in the KWL table. A reading test was administered in the fourth week of each month.

**Analysis**

To answer the research questions, the researchers used the Wilcoxon signed-ranks test (a non-parametric equivalent of the matched pairs t-test) to determine the impact of the KWL strategy on the struggling readers' reading comprehension on four testing occasions. This test is appropriate for a study with a small sample size. To capture the development of the students' reading ability, data collected from the interview with individual students and from the KWL tables of different articles were analyzed.

**Findings**

1. What are the effects of training in KWL on struggling Thai college EFL readers' accuracy in responding to reading comprehension questions on different testing occasions?

**Table 1**: Means and Standard Deviations for the reading tests

| **Testing Occasions** | **Means** | **Standard Deviations** |
|---|---|---|
| Test 1 | 53.84 | 17.09 |
| Test 2 | 56.00 | 12.83 |
| Test 3 | 57.19 | 16.06 |
| Test 4 | 64.66 | 16.13 |

With respect to accuracy in responding to comprehension questions on the reading test, the results shown in Table 1 revealed that the levels of improvement in reading performance were quite moderate in magnitude. In order to determine whether students

improved their ability in responding to comprehension questions across the testing occasions, the means of the four testing occasions were compared and indicated that the means were incrementally different over the testing occasions, for instance, from testing occasion 1 to the latter occasions.

In addition, a Wilcoxon signed-rank test was conducted to determine whether the students showed their improvement of reading ability over testing occasions. Of the four testing occasions, the results indicated a significant difference between testing occasions 2 and 4 only, $z = -2.20$, $p < .05$, $r = 0.61$. The students could perform on testing occasion 4 (Mdn= 61.88) better than testing occasion 2 (Mdn = 58). The magnitude of the effect size was moderate.

2. What are the effects of training in KWL on struggling Thai college EFL readers' use of reading strategies?

At the beginning of the study, in the light of the K-step the students were able to make predictions based on textual clues such as titles, headings and pictures. They would clarify the meaning of the title and translate the meaning of the title from English into Thai. For instance, when assigned to read a passage titled —Psychic solves crimes‖, fifty percent of the students attempted to decode the meaning of the word —crime‖ and to interpret what the title means. Yet a few of the predictions were inaccurate or irrelevant to the story. For example, some of the students made use of the title and picture clues to make irrelevant statements or predictions, such as the woman in the picture who looks tired and bored.

At the W-step, the students were able to ask important questions capturing the gist and important points of the story to guide their reading, for example, —What's psychic?‖, —How can psychic solve crimes?‖ and —In what way does the woman have something to do with the story?‖.

At the L-step, the students tried to answer the questions they had asked in the W-column of the KWL table in English and in their

first language. When they answered in English, they would scan the information from the text and were very likely to copy sentences conveying answers to the questions. However, their answers were not clear enough to provide satisfactory answers to the questions, or related to trivial information.

> Question: What's psychic?
> Answer: Someone who can see future events with unnatural power. (Student 13)

> Question: In what way does the woman have something to do with the story?
> Answer: She never received any money. She thinks it's not a gift but a curse. (Student 06)
> Answer: She thinks that everyone was born with abilities similar to hers, but few try to use them. Sometimes she feels awful because she often picks up the pain of the victims. (Student 13)

Some of the student-generated questions in the W-column were not answered because no information was provided in the text.

At the end of the study, the students were able to make predictions more effectively in the K-column. Their predictions were not limited to specific information about the topic of the text which was derived from titles and picture clues. The students also brought their world knowledge in relation to the text, in order to make sense of the text they were going to read. The following are examples of predictions in the K-column of a reading passage titled "Trouble Brewing."

> Coffee contains caffeine which increases level of blood pressure and risk of heart disease. (Student 13)

> Coffee contains chemicals that stimulate nerve systems. (Student 14)
>
> Coffee with cream has stronger effect on nerve systems than regular coffee does. (Student 14)

When they tried to generate questions in the W-step, they could think of a lot of questions that helped guide their reading. However, it appeared that a few of the questions were not relevant to the text and could not be answered by the information on the text.

Findings showed that the students were able to get a lot of important information from their reading. Since the use of their first language was allowed, they could express their understanding of the text and organize the information in their own words in the L-column according to the questions in the W-column. They then referred back to the questions in the W-column, in order to answer those questions and to check which questions had been answered by the information from the text. In this way they could monitor their own reading.

Analyses of the interview and their self-assessment revealed that the students perceived themselves as poor readers before they participated in this study. When they read an English text, they would start reading the text and try to translate word meanings. They heavily relied on the text and a monolingual dictionary. They sometimes ended their reading understanding nothing, according to their own reports on what the text was about. After they were trained how to use the KWL method, the majority of the students reported that they could read more strategically; they knew what they should do before, during and after reading. Their reading was directed with purposes and questions. They stated that they were more confident in their reading and could persist in their reading when encountering any reading difficulties.

For example:

> I think it (KWL) helps me set my reading goals. I like this technique. (Student 03)

> I can read better than I used to. … I am more confident in my reading ability. I can spend a longer period of time reading a longer passage. (Student 04)

> Before I learned KWL, I read without focus. After I learn to use KWL, I can pay more attention to my reading. I can focus on questions while I am reading. (Student 10)

However, it was interesting to find out that a few students thought that although KWL was a good strategy, they did not think that the strategy would help them understand word meanings or language structures better. They also thought that this strategy was not helpful when they had to take a reading test.

> I don‘t like this strategy. It‘s quite complicated. There are many steps. It‘s not my learning style. I normally read and read and read it further. But I do ask myself what I learn from reading that text. It‘s a waste of time. (Student 04)

> Before I learned this strategy, I didn‘t understand what I read. When I read a text, I would try to figure out which vocabulary I knew. In the midterm exam, I tried to think about what I knew about that reading before I read. … it (KWL) didn‘t work when I took a reading test. I had to read faster. I looked at questions and scanned the reading to find answers. (Student 06)

**Discussion**

KWL appears to affect student accuracy in responding to reading comprehension questions. Over time, student scores increased. When compared to their scores on the first testing occasion, the students scored slightly higher over subsequent testing occasions. It is clear that their reading ability improved significantly from the middle of the study to the end of the study. Their score on the final test was significantly greater in magnitude than that in the middle of the study. However, no statistically significant differences were found between the scores on the final test and those on the others. One critical factor that may explain the lack of significant findings for the students' accuracy in responding to reading comprehension questions may be attributed to the participants' lack of English language proficiency. Second language readers with strong decoding skills but poor comprehension generally gain more benefit from strategy instruction than those with weak decoding skills and poor comprehension (Palincsar & Brown, 1984; Dermody & Speaker, 1995). The weaker readers are compelled to spend more time decoding and translating texts into their native language before they can make meaning from texts.

Another factor that could explain the lack of statistical significance in the findings may be due to the sample size. According to Gall, Gall and Borg (2006), the power of the statistical analysis test is dependent on sample size in the study. In this study, there were fewer than 20 participants, creating the potential for unreliability in quantitative (statistical) analysis, whereas we would argue that our qualitative observations remain valid. It is very important to make the point that the researchers conducting this study were aware of this "power of the statistical analysis test" issue. In fact, the study was conducted in an actual classroom situation, so the number of the participants could not be controlled.

This study provides some degree of empirical support to corroborate the effects of KWL on struggling Thai college readers' strategy use. The students became active readers. They activated

their general world knowledge and domain-specific knowledge relevant to the content of the text (K), generated questions that they wanted to learn from the text (W), establishing purposes for their reading, reviewing and recording what they learned from reading (L). The students started previewing textual clues and then asked themselves questions that they were interested in learning from the text. They recorded what they knew about the text and the questions in the KWL table. Self-generated questions helped arouse their curiosity to read (Vacca, Vacca & Mraz, 2010) and led to a higher level of text processing and improved comprehension (Palincsar & Brown, 1984; Brown, Palincsar & Armbruster, 1984). The students then had opportunities to review their self-generated questions from the KWL table and to search for information to answer their questions. They recorded what they learned in the L-column and answered their self-generated questions in the W-column. The method creates a context that nurtures the increased use of self-monitoring and metacognitive awareness.

Writing what the students learn from the text and recording answers to answer their questions is a powerful tool that promotes active readers. It helps struggling readers make connections between what they read, what they understand and what they think (Carr, 2002), think critically about the important information in the text and draw conclusions on what they learn from the text. Struggling readers will attempt to search for the information to answer their own questions and to refer back to the questions in the W-column after reading. This suggested that the KWL table can be used as a tool to help struggling readers monitor their reading.

Even though a few of the self-generated questions in column-W cannot be answered since there is no relevant information in the text, this should not be a major concern. The main purpose of generating questions is to set purposes for reading and to make readers actively search for information during reading. It is very important for the teacher to explain to these students that there is nothing wrong if

there is no information provided in the text to answer their self-generated questions. They can read other texts further to get answers.

However, a few struggling readers expressed the opinion that the KWL approach was helpful to their reading, but it did not help them to understand complex sentences or language structures and to figure out unfamiliar words. These students also thought that it was "a waste of time" to use this approach when they took a reading test. One critical factor that might explain this belief may be attributed to the lack of explaining the use of the KWL approach clearly enough. At the beginning of the study, even though the students were told that they would learn effective reading strategies which would help them read in English, the teacher and the students did not clearly discuss the reasons for using the strategies and the importance of the approach. According to Paris, Lipson and Wixson (1983), to be a strategic reader, an individual needs to have a clear idea of strategic knowledge: what the KWL approach is, how and when to apply the strategy, and more importantly why to implement the strategy. It is very likely that these struggling readers did not possess a clear conception of the KWL approach from the outset. Students need to be explicitly taught this type of knowledge. If students understand neither the value of the KWL approach nor the importance of the approach, leading them to believe that the strategy will not make any difference in their reading, this will, of course, make them reluctant to use this or other less-familiar or effort-demanding strategies. Therefore, teachers need to help the students understand the usefulness and importance of strategic knowledge and realize the value of the strategy (Paris et al., 1996). If so, these readers will independently be able to apply the strategy at the right time and in the right context. When they do so, they will be more likely to become strategic readers (Buehl, 2008).

**Implications for instruction**

The findings from this study suggest a number of implications for instruction.

1. To make the strategy instruction effective, it is very important that teachers explicitly teach the KWL method and increase student understanding of what, how, when and why use the strategy and of the value of the strategy. To help struggling readers see their own development and appreciate the value of the strategy, they should keep strategies-based learning logs. They will then become aware of their strategy use and of their development of reading.
2. The struggling readers should be taught other strategies to help them solve other reading problems such as dealing with unknown words, using text structure awareness, making inferences, and dealing with complex sentence structures. Grammatical instruction is also needed for struggling readers. Yet, teachers have to be very careful and selective to contextually teach grammatical knowledge that is appropriate for text comprehension (Grabe, 2009). Teaching the struggling readers these necessary sub-skills until they are able to master them at a minimum level could improve their reading (Rosenshine, 1980).
3. Teachers need to consider using students' first language as an initial mechanism for discussing and expressing their understanding of a text. For struggling readers who are not proficient in English, teachers might allow the students to discuss an English text in their native tongue and to express their understanding of the text in the KWL table in order to reduce their level of anxiety for dealing with English texts. Using the students' first language will encourage the students to talk more and to interact with the text more. This will make their reading and interacting with text less stressful and will benefit their learning English (Lantolf, 2000).
4. Teachers need to help the struggling readers understand that it is acceptable that they might not be able to answer every self-generated question in the W-column after reading. Keeping those questions in mind while reading helps them monitor

their reading and read with purposes. Some of the questions might be answered from the information in the text, and some could be answered from further readings.

In conclusion, this study provides evidence to support the use of the KWL approach to promote struggling L2 readers' reading ability and strategy use. It helps the readers activate their background knowledge, set purposes before reading, reviewing and recording what they learn from their reading. This approach also engages the struggling readers in lively and friendly discussions. They will become independent self-regulated readers through the utilization of the strategy. These struggling readers will ask themselves the following questions after the last words are read: "Did I meet my reading goals?, What did I learn?, Did everything make sense to me?"

**Limitations**

The participants of this study were struggling college students who were proficient in their first language but had difficulty in English. Generalizability of the results from this investigation should be limited to comparable participants and materials.

The number of struggling college students participating in this study was limited. This makes us view our findings as preliminary findings which of course needs an extensive investigation with a large number of students.

In addition, this study took place in a reading class which provided students with practices on reading skills such as identifying main ideas and supporting details, guessing word meanings and identifying word referents. The teacher was concerned that she might not be able to cover the content and materials required by the course. As a result, the researchers agreed to use reading passages similar to the type of reading regularly read in this class.

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