English Language Teaching; Vol. 8, No. 11; 2015
ISSN 1916-4742 E-ISSN 1916-4750
Published by Canadian Center of Science and Education

Exploring ESL/EFL Teachers' Pedagogical Content Knowledge on Reading Strategy Instruction

Wei Xu[1]

[1] School of Education, Shanghai International Studies University, Shanghai, China

Correspondence: Wei Xu, School of Education, Shanghai International Studies University, Room816 Building1 550 West Dalian Road, Shanghai, China. 200083. Tel: 11-86-189-3993-3277. E-mail: wei_xu@shisu.edu.cn

Received: August 30, 2015 Accepted: October 13, 2015 Online Published: October 14, 2015

doi:10.5539/elt.v8n11p155 URL: http://dx.doi.org/10.5539/elt.v8n11p155

Abstract

Any instructional practice must be derived from a teacher's knowledge base for teaching, which can be acquired by training, study, or practice. While much attention has been paid to teachers' practical content knowledge in real educational settings, comprehensive syntheses of expert knowledge on a particular teaching task for a specific group of teachers are still scarce. This paper tends to synthesize ESL/EFL teachers' pedagogical content knowledge of reading strategy instruction through learning the expertise conveyed in literature. Drawing on related studies in the field of reading strategy instruction either in general or in ESL/EFL contexts, this argumentative article first proposes a synthesized reading strategy instruction model which consists of one key component and two general principles, all of which create and are created by a safe and risk-free environment where students learn to use strategies actively and consciously with motivation and assistance. This article then elaborates on eight instructional strategies using summarizing strategy instruction as an example in terms of three types of knowledge: declarative, procedural, and conditional. With the enrichment of the pedagogical content knowledge on strategy instruction, ESL/EFL teachers might teach reading strategies effectively both *with* metacognition, i.e., consciously planning, monitoring, and evaluating their teaching, and *for* metacognition, namely, to affect their students' metacognitive awareness of strategy use in reading.

Keywords: teacher knowledge, pedagogical content knowledge, metacognition, reading strategy instruction, summarizing

1. Introduction

Knowledge of how to teach reading strategies in general can be classified as part of teachers' pedagogical content knowledge (PCK) according to Shulman's typology of teachers' professional knowledge. Shulman (1986) considered a solid knowledge base a precondition to effective teaching, and conceived the knowledge base for teaching as an amalgam of knowledge, skills, and dispositions that underlies a teacher's capacity to teach successfully. According to Shulman (1987), a teacher's pedagogical content knowledge indicates his/her capacity to transform the content knowledge he or she holds into forms that are pedagogically powerful and yet adaptive to different students' ability and background.

The investigation of knowledge on teaching could proceed along two major types as distinguished by Fenstermacher (1994) – formal knowledge, which is referred to as knowledge *for* teachers, principally known and produced by researchers, and practical knowledge, which is described as knowledge *of* teachers, primarily known and produced by teachers themselves. In the field of ESL/EFL instruction, some attention in different educational settings has been paid to teachers' personal practical knowledge (PPK), which is defined as "a moral, affective, and aesthetic way of knowing life's educational situations", and is deeply fixed in one's daily teaching practice (Connelly & Clandinin, 1988). For example, Xie (2014) conducted a narrative inquiry into the short-term development of two EFL teachers' PPK based on the critical analysis of their lesson planning and teaching reflections as well as the researcher's observation and interview records. Tsang (2004) operationalized teachers' PPK as teaching maxims while investigating three pre-service non-native ESL teachers' PPK, and conducted content analysis of their language teaching autobiographies obtained via interviews, observations and a video-based method. However, little attention has been given to the exploration of ESL/EFL teachers' formal

knowledge on a particular teaching task, such as reading strategy instruction, which is the focus of this article. ESL/EFL teachers' formal pedagogical content knowledge of reading strategy instruction can be developed through learning the expertise conveyed in literature. Such learning helps the teacher generate a reading strategy instruction approach suitable for ESL/EFL learners. This generation might derive resources from the effective strategy instruction models and approaches that already exist and have been repeatedly applied to teaching either native English-speaking learners or ESL/EFL learners. Some strategy instruction approaches good for native English-speaking learners might also work for ESL/EFL learners when teachers teach intentionally, making certain adaptations according to their learners' characteristics.

Drawing on the major critical components of effective strategy instruction valued by instructors of reading and fellow researchers, this article firstly synthesizes a reading strategy instruction model applicable to ESL/EFL instructional contexts. Then, the key components serve as guidance to elaborate ESL/EFL teachers' formal knowledge of cognitive instructional strategies to teach reading strategies. Taking summarizing strategy instruction as an example, such elaboration is carried out along with the three categories of knowledge – declarative, procedural, and conditional.

2. Synthesis of an Effective Reading Strategy Instruction Model

A variety of researchers and educators have considered different reading strategies either within the domain of reading, such as in direct explanation (Duffy, 2003; Aghaie & Zhang, 2012), Reciprocal Teaching Approach (RTA, e.g. Palinscar & Brown, 1984, 1986), and Transactional Strategy Instruction (TSI, e.g., Anderson, 1992; Pressley et al., 1992; Brown et al., 1996), or as general cognitive strategies across domains, such as in Good Strategy User Model (Pressley, 1986; Pressley et al., 1989), Direct Instruction (e.g. Gersten & Carnine, 1986), and Cognitive Academic Language Learning Approach (CALLA, e.g. Chamot & O'Malley, 1986, 1994, 1996). To identify the representative models and theories that are influential in the area of reading strategy instruction, such key concepts as "reading strategy," "reading strategy instruction," "teachers' knowledge of strategy instruction," "strategy instruction" were used to search various databases, including ProQuest, EBSCO*host*, SAGE, JSTOR, and others. Citation frequencies, and the views and opinions of experts in related fields were considered to identify a knowledge base for the synthesis of ESL/EFL teachers' pedagogical content knowledge of reading strategy instruction. Three strategy instruction approaches are finalized, which were proposed respectively by Pressley (1990), Almasi (2003), and Chamot and O'Malley (1994).

Each approach itself was synthesized on the base of different models of strategy instruction. Each of them has also been very representative either in general or for a particular group of students or in the field of ESL/EFL instructional settings. The following sections examine each approach, compare them, and finally integrate the essential components of all approaches to generate a synthesized reading strategy instruction model.

2.1 An Overview of Three Strategy Instruction Approaches

2.1.1 Pressley's General Outline for Strategy Instruction (1990)

Pressley's General Outline for Strategy Instruction aims at training good strategy users (1990), not specifically fixing on any group of ESL/EFL learners or native English-speaking learners. Thus, the key elements of his outline should be applicable to regular strategy instruction for different learners including ESL/EFL readers.

From several models of instruction, including the Good Strategy User Model (Pressley, 1986), the Kansas Strategy Intervention Model (Deshler, Schumaker, & Lenz, 1984; Deshler & Shumaker, 1994), and Direct Explanation (e.g., Duffy & Roehler, 1986, 1987; Duffy, Roehler, & Putman, 1987), Pressley extracted a common pedagogical perspective: All these models have paid instructional attention to all of the components of good strategy use, which include "metacognitive information about strategies (e.g., when and where to use them), non-strategic knowledge, and appropriate motivational beliefs" (p. 14). Then from this perspective, Pressley (1990) drew a general outline of how to teach a strategy, which consists of the following six recommendations (*ibid*, see details on pp. 17-18):

1) The teacher describes a strategy to students, particularly with "thinking aloud" statements. The description involves modeling why, how, when, and where to use the strategy as well as what it accomplishes, and remodeling and re-explaining some aspects of strategy use when necessary.
2) The teacher provides students with plenty of guided practice, accompanied by the teacher's reinforcement and feedback about how to improve strategy use. During this stage, the teacher should also control the level

of teaching materials, monitor student progress, diagnose student difficulties, and adjust instruction accordingly until students can execute a strategy proficiently.

3) The teacher encourages strategy generalization by having students practice strategy use with different types of materials, and teaching students to be on the alert for cues to apply a strategy in various learning contexts.
4) The teacher teaches students to monitor what they are doing when they use strategies.
5) To increase students' motivation, the teacher should heighten their awareness of acquiring valuable skills that are at the heart of competent functioning.
6) Reflective processing rather than speedy processing is emphasized. All possible measures should be done to eliminate students' high anxiety and to help them attend to academic tasks.

From this, Pressley then synthesized five important instructional strategies for effective strategy instruction, which include (a) modeling, (b) explaining, (c) guiding practice, (d) monitoring progress, and (e) providing feedback. In addition, teachers should also be able to organize students' active involvement, and control the difficulties of teaching materials, which must progress gradually from simple to grade-level texts and from single to multiple structure types. All these teaching strategies should be considered reasonably to various degrees when teachers design any strategy instruction. These instructional strategies are also emphasized in another strategy instruction model put forward by Almasi (2003), which is discussed in next section.

2.1.2 Almasi's Strategy Instruction Model (2003)

Almasi (2003) proposed her Strategy Instruction Model on the basis of an overview of eight models of strategy instruction, and her well awareness of emergent and struggling readers' challenges. Almasi (2003) first analyzed the characteristics of the following eight models along three categories of strategy instruction formats: (a) exogenous model (Direct instruction, and Direct Explanation), (b) dialectical model (Explicit Instruction, Informed Strategies for Learning, Reciprocal Teaching, and Transactional Strategies Instruction), and (c) endogenous model (Collaborative Problem Solving, and Process Talk). The first category focuses on direct teaching via modeling and explanation, the second relies less on extensive explanations in direct teaching than scaffolded discovery via interactions between the learner and more knowledgeable others in social contexts, and the third emphasizes more child-centered inquiry in social contexts than direct teaching (see details in Almasi, 2003, p.44). Many emergent and struggling readers usually possess no knowledge of a given strategy, and thus are unable to "discover" it on their own as that occurs in the strategy instruction format of endogenous model, so Almasi made a decision to base her Strategy Instruction Model on the dialectical instruction format (*ibid*, pp. 49-50)

Almasi's Strategy Instruction Model (2003) therefore consists of three key components, i.e., provision of explicit instruction and scaffolded supports, reduction of processing demands, and creation of opportunities for student dialogue and verbalization. Mutual effects exist between the three components. The total interactive effects help create a safe and risk-free environment that supports and facilitates motivated strategy use. Almasi (2003) pointed out that "this safe and risk-free environment is a recursive one that creates, and is created by, the other components" (p.50). Some characteristics of Almasi's model, such as explicit instruction, are also highlighted in Chamot and O'Malley's Cognitive Academic Language Learning Approach (CALLA, 1994), as discussed in the following section.

2.1.3 Chamot and O'Malley's CALLA (1994)

CALLA focuses on the effectiveness of strategy instruction for reading and other language skills within content areas. As Almasi's model, CALLA also shares some instructional perspectives with the Reciprocal Teaching Approach, and Transactional Strategy Instruction, which include (a) reviewing "learning strategies as basic to comprehension of text", (b) emphasizing "student's awareness of both cognitive and metacognitive strategies for learning" , (c) recognizing "the social aspects of learning" , and (d) using cooperative learning, direct modeling and explicit instruction in strategy instruction (Allen, 2003, p. 335). Nevertheless, CALLA is unique in three main components as follow:

1) The content in a language classroom is aligned with the content in a grade-level classroom when CALLA is conducted at various educational settings.

2) Students' academic language development should be promoted by the acquisition of four language skills – speaking, listening, reading and writing – across content area subjects, together with such learning skills as analyzing, evaluating, justifying, and persuading. All these language and learning skills are necessary and essential for the academic world of schooling.

3) Learning strategy instruction is conducted via explicit instruction, and guided practice and application. (Chamot & O'Malley, 1994, p. 11).

These three broad components of CALLA have been translated into a five-stage instructional sequence. The five stages are preparation, presentation, practice, evaluation, and expansion. The preparation stage promotes student metacognitive awareness by eliciting their prior knowledge of a subject and strategies that they might already be using. The stage of presentation involves conveying new information via teacher modeling, using meaningful content with many visuals and demonstrations. The practice stage provides students with opportunities to employ new information in many ways, using oral and written academic language, and to apply strategies, often collaboratively, in classroom activities. The stage of evaluation requires students to assess the worth of what they have learnt so that they develop the metacognitive awareness of their accomplishments and learning processes. At the stage of expansion, students are asked to apply what they have learned to different situations in their lives. These stages are not always followed in a strict order, but always present when new content, language knowledge, and strategies are introduced. The proceeding of these stages can be viewed almost in a spiral shape, and the instructional emphases at each stage shift in line with students' needs, forming the interplays of various teaching and learning practices (Chamot & O'Malley, 1996).

To be consistent with the above-mentioned five-stage instructional sequence, Chamot and O'Malley (1994) recommended a five-step procedure for strategy instruction, that is, prepare, present, practice, evaluate, and expand. This five-step instructional procedure has been "researched extensively with students and found to be successful in introducing students to strategies, encouraging their use, and sustaining use and transfer of the strategies over time" (Chamot & O'Malley, 1994, p. 66). The five-step procedure involves both the gradual release of teacher responsibility and the gradual increase of student responsibility from step one, preparation, to step five, expansion. The teacher responsibilities implied in the framework include activating background knowledge, explaining, and modeling at the preparation and presentation stage, coaching with extensive feedback at the practice stage, encouraging assessment at the stage of evaluation, and promoting transfer at the expansion stage.

These teacher responsibilities can be understood as instructional strategies that teachers could acquire to accomplish the teaching tasks at each stage. These instructional strategies are either included in or complemented by the teaching strategies recommended by Pressley (1990) and Almasi (2003). Thus, it is reasonable to integrate Pressley's general outline and Almasi's model with Chamot and O'Malley's CALLA so as to synthesize some key components of a strategy instruction model for ESL/EFL teachers. These components should be taken into consideration when teachers plan strategy instruction. The next sections focus on the integration of these three approaches and the synthesis of the key components.

2.2 Synthesis of a Reading Strategy Instruction Model

2.2.1 Comparison of Almasi's Model with Pressley's Outline

Compared with Pressley's general outline of strategy instruction (1990), Almasi's Strategy Instruction Model (2003) has added the sociocultural perspective of teaching and learning. This sociocultural aspect emphasizes the creation of a safe and risk-free environment for student learning, together with the provision of opportunities for student verbalization. Nevertheless, Pressley's recommendation that all possible measures should be done to eliminate students' anxiety is in accordance with this sociocultural perspective, and also helps create a safe and risk-free environment. Moreover, Almasi's requirement of students to verbalize their strategy use has no conflict with what Pressley has suggested that students monitor, be aware of, and reflect on the process of strategy use. In addition, Pressley's suggestion that the teacher control the difficulties of teaching materials could be considered in alignment with Almasi's proposal of reducing processing demands. Therefore, Pressley's general outline of effective strategy instruction (1990) and Almasi's Strategy Instruction Model (2003) actually complement each other. Almasi's model generalizes three major components to "help create and become the safe and risk-free environment that supports and facilitates motivated strategy use" (2003, p. 50), while Pressley's general outline emphasizes many particulars that are covered under the components of Almasi's model.

Furthermore, the sociocultural perspective of both Almasi's model (2003) and Pressley's general outline (1990) is also comparable with Stephen Krashen's affective filter hypothesis. Krashen (2003), a second-language acquisition theorist, has argued that "affective variables do not impact language acquisition directly but prevent input from reaching what Chomsky has called the 'language acquisition device,' the part of the brain responsible for language acquisition" (p.6). This comparability indicates that to design and conduct an effective strategy instruction to ESL/EFL readers, ESL/EFL teachers should hold the sociocultural perspective – creating a safe and risk-free environment to motivate ESL/EFL learners' strategy use.

However, to generate a strategy instruction model appropriate and applicable to ESL/EFL instructional contexts, ESL/EFL teachers' knowledge about Almasi's Strategy Instruction Model (2003) and Pressley's general outline of strategy instruction (1990) is not enough. They still need to know those models or approaches that have supported effective strategy instructions to ESL/EFL learners who are in the process of gaining mastery over English language. Both Almasi's model and Pressley's outline of strategy instruction basically focus on the acquisition of a cognitive strategy, without giving enough consideration of applying the strategy to the acquisition of a second or foreign language and to the learning of subject contents. Therefore, ESL/EFL teachers should choose a strategy instruction model that considers both content area study and language acquisition while providing strategy training. Chamot and O'Malley's CALLA is such a model because it concentrates on ways to help ESL/EFL students conduct their content area studies more effectively and strategically through English language learning. CALLA, thus, should be integrated into both Almasi's model and Pressley's outline for the purpose of generating the key components of an effective strategy instruction approach. This approach should then be considered part of ESL/EFL teachers' pedagogical content knowledge on reading strategy instruction.

2.2.2 Integration of the Three Strategy Instruction Approaches

CALLA is a strategy instruction model that can be used in ESL, EFL, bilingual, foreign language, and general education classrooms. It aims to teach essential language knowledge, together with effective learning strategies, which allow students to regulate their own learning independently (Chamot & O'Malley, 1996). Thus, we suggest that ESL/EFL teachers adopt the five-stage strategy instruction procedure of CALLA to teach reading strategies. Moreover, at each stage teachers should adopt and adapt certain instructional strategies to meet different ESL/EFL students' needs. From the recommendations by Chamot and O'Malley (1994), Pressley (1990), and Almasi (2003), we can summarize eight general instructional strategies for the five-stage strategy instruction as shown in Figure 1.

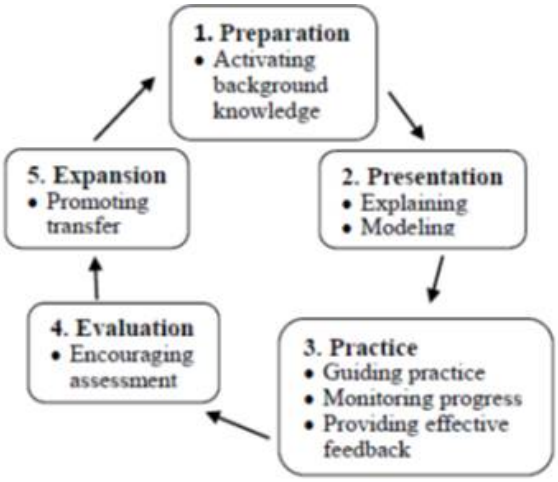

Figure 1. Eight instructional strategies for the five stages of strategy instruction

Notes. These five stages of strategy instruction are adapted from the five-stage instructional procedure in Chamot and O'Malley's CALLA (1994).

In addition, during the whole process of the five-stage strategy instruction, teachers should also follow three general principles: (a) Teachers should organize students' active involvement, such as creating opportunities for student verbalization to internalize the cognitive process of strategy use (Almasi, 2003); (b) Teachers should

reduce processing demands when needed, such as controlling the difficulties of teaching materials (Pressley, 1990), and conducting instruction recursively (see details in Almasi, 2003, pp.62-66); and (c) Teachers should follow the above key components and principles in a recursive fashion to help create a safe and risk-free environment. In such an environment the learner develops strategy use, proceeding from the very limited and/or subconscious stage to the active and conscious stage until reaching the automatic stage of using internalized strategies.

Figure 2. A Synthesized Strategy Instruction Model Based on Pressley (1990), Chamot & O'Malley (1994) and Almasi (2003)

The key component and the principles of this synthesized strategy instruction model are shown in Figure 2 as above. In Figure 2, three gears represent respectively the key component, the "five-stage strategy instruction procedure," and the two general principles, "reducing processing demands" and "organizing students' active involvement". The gears of two principles mesh with the gear of the "five-stage strategy instruction procedure", transmitting motion to one another. Moreover, the process of making the key elements and principles of strategy instruction to be in gear, and the process of gearing them in motion smoothly are both recursive ones, which create and are created by the safe and risk-free environment where students are motivated and assisted to use strategies actively and consciously. The two principles, though not meshing with each other, affect and are affected by one another in their specific functions to transmit motion to the gear of the key component.

This synthesized model could make sure that ESL/EFL teachers teach reading strategies to ESL/EFL learners *for* metacognition. That is to say, with this model, teachers can help students acquire reading strategies until they reach the stage of conscious and automatic strategy use. This means that the students can eventually plan, monitor and evaluate their own strategy use in terms of various learning tasks. This is exactly the characteristic of metacognitive learners. Metacognition refers to one's real-time recognition and regulation of his/her own thinking, which is an important component essential to the process of teaching and learning as identified by the American National Research Council (Young, 2010). In line with this understanding, to ensure the effectiveness of the synthesized model, ESL/EFL teachers should then conduct, *with* metacognition, the eight general instructional strategies implied in the five-stage strategy instruction framework (see Figure 1, p. 5).

In fact, the ideas of teaching *with* and *for* metacognition are conveyed in Hartman's concept of "teaching metacognitively" (2001). Basically, the former indicates teachers' thinking about their own teaching for the purpose of effective instruction, while the latter, teacher's thinking about how their teaching could promote student metacognition (Hartman, 2001). Metacognition functions both in the role of declarative, procedural, and conditional knowledge and in the way of planning, monitoring, organizing, and evaluating strategies (e.g., Brown, 1980 & 1987; Flavell, 1976 & 1979; Hacker, 1998). It is commonly agreed that metacognitive knowledge is the foundation of any other metacognitive functions (Flavell, 1976 & 1979; Hacker, 1998). Therefore, ESL/EFL teachers' knowledge of reading strategy instruction is the basis of their day-to-day practice of strategy teaching either *with* metacognition, or *for* metacognition, or *both*. It is then worthwhile to elaborate on ESL/EFL teachers' pedagogical content knowledge of reading strategy instruction in terms of the above-mentioned eight instructional strategies. This is the focus of the following sections.

3. Elaboration of the Eight Instructional Strategies

As mentioned earlier, the eight general instructional strategies are implied in the five-stage strategy instruction framework: activating background knowledge, explaining, modeling, guiding student practice, monitoring progress, providing effective feedback, encouraging assessment, and promoting transfer (see Figure 1, p. 5). These instructional strategies are actions that teachers select deliberately to accomplish a particular teaching task and attain a particular teaching goal. These are thus cognitive instructional strategies.

Teachers' intentionality is required to conduct these strategic actions in various educational settings to meet the needs of diverse students. This intentionality promotes teachers' teaching with metacognition. That is to say, teachers should be aware of not only their own perception of the nature of these instructional strategies, but their own as well as expert teachers' instructional practice of those strategies. To ensure effective strategy instruction, teachers need to acquire relevant pedagogical content knowledge at both the cognitive and metacognitive level so that they are able to plan, monitor, and evaluate their teaching both online and offline productively.

The following sections first synthesize relevant information for each instructional strategy generally, setting summarizing strategy instruction as an example. Then the information is organized in different tables along with three types of knowledge, namely, declarative, procedural, and conditional. Such knowledge is essentially about what the instructional strategy is, how, when, where and why it is applied to practice.

3.1 Activating Background Knowledge

The well-received wisdom in comprehension instruction is that background knowledge can positively affect reading comprehension, and readers do not always automatically activate their prior knowledge to understand new information even when they possess it. This fact makes it necessary and important for teachers of reading to encourage their students to relate new information to what they know during reading (e.g. Anderson & Pearson, 1984; Hirsch, 2003; McKoon & Ratcliff, 1992; Pressley, 2000; Stanovich & Cunningham, 1993).

Activating prior knowledge is an important part in CALLA. Students should be explicitly taught to link what they already know to what they are to learn on their own "through brainstorming discussions about the lesson topic, semantic mapping or other graphic organizers, or a cooperative activity" (Chamot & O'Malley, 1994, p. 33) or "*elaboration*" (*ibid*, p. 13). Dornan, Rosen, and Wilson (2005) also recommended semantic maps, together with a pretest (e.g. a small quiz), an anticipation guide, and K-W-L, as assessment tools to check students' prior knowledge before they are exposed to new reading materials.

Tapping prior knowledge is usually considered one of the purposes for pre-reading, though it should be recursively applied when necessary during the whole reading process. In the late 1980s and early 1990s, many studies demonstrated that "Why?" questions, or "elaborative interrogation," can orient readers to their prior knowledge relevant to new factual information in a text they read (Pressley, 2001). The power of elaborative interrogation is to encourage readers to ask themselves "Why did the factual knowledge in text make sense?"

A small quiz, posing a few questions about previously read chapters, gets the readers ready for the upcoming reading. An anticipation guide is "a one-of-a kind pre-reading exercise that contains a series of about ten to fifteen statements that reflect one narrow aspect" of reading materials. And students "must usually make binary choices to respond to the statements: yes/no, likely/unlikely, then/now, agree/disagree." (See details in Dornan, Rosen, & Wilson, 2001, pp. 252-254).

K-W-L, a teaching model devised by Donna Ogle (1986) to develop active reading of expository text, stands for *K*now, *W*ant to Know, and *L*earned. K-W-L involves a 3-step procedure for reading instruction, which includes (a) accessing students' background knowledge relevant to the text, (b) deciding on what students want to learn from it, and (c) outlining what they actually learn. Now K-W-L, together with its 3-column chart with the columns labeled "*K*," "*W*," and "*L*" respectively, has become a research-based and commonly-used instructional strategy for teaching reading. Variations are developed of this popular exercise, such as K-W-H-L, where the "H" column stands for "How to learn" (Blaskowski, 1995); or K-W-L-S, where the "S" column corresponds to "What I still need to learn" (Moore, Alvermann, & Hinchman, 2000).

Then, semantic maps are one type of graphic organizers that helps students visually organize and graphically show the relationships among various concepts from their prior knowledge or in a text. Semantic mapping is a reading strategy that has been identified by researchers as an excellent technique for a pre-reading, during-reading, or post-reading activity in reading comprehension instruction. Semantic maps can be used to activate prior knowledge and to introduce key vocabulary words. In the during-reading stage, semantic maps can

guide students' reading, helping them "recognize new relationships, organize additional information, or develop a synthesis" (Dornan, Rosen, & Wilson, 2005). As a post-reading activity, original maps can be extended to include words, categories, and new concepts from reading so as to enhance readers' comprehension.

All the strategies reviewed above have been proven to be effective in activating students' prior knowledge, which is essential in comprehending a text, especially when the author has not stated all necessary information explicitly and clearly in the text. These strategies have been used to focus on students' background knowledge of the contents of reading materials. While being used in strategy instruction, these strategies can be adapted to tap students' prior knowledge of strategy use. For example, a K-W-H-L charted can be created for summarizing strategy instruction to activate the learner's knowledge in terms of K (What I know about summarizing strategies), W (What I want to know), H (How can I apply summarizing strategies in my study), L (What have I learned about applying summarizing strategies to the process of reading to learn). The above discussion is briefly summarized in Table 1 as follows to show teachers' declarative, procedural, and conditional knowledge of the instructional strategy – activating background knowledge.

Table 1. Teachers' declarative, procedural and conditional knowledge associated with the instructional strategy of activating background knowledge

Knowledge Types		Activating background knowledge
Declarative Knowledge		1. Before teaching any reading strategies, it is helpful to activate what students know.
What		2. Activating students' prior knowledge involves checking their declarative, procedural, and conditional knowledge about certain strategies.
		3. As you teach you should continuously try to make connections between what students already know or acquire and the new aspects or skills related to that strategy.
Procedural Knowledge		1. Conduct elaborative interrogation, asking such questions as "Why, when, and where is the strategy helpful to read text?"
How		2. Use the "K" portion of K-W-L teaching procedure (Ogle, 1986), ask students to think about what they know.
		3. Give a small quiz to see how students use the to-be-taught strategies.
Conditional Knowledge	Why	1. It helps you gain an idea of what students know or acquire.
		2. It helps you prepare for teaching (reduces instructional repetition).
		3. It helps you focus your teaching on what students do not know (reduces content selection problems and meets students' needs)
	When	1. If it is done before you teach, it will help you anticipate students' performance.
		2. Anticipating students' performance will help you set teaching goals and make predictions about teaching process.
		3. If done while teaching it will help you adjust your teaching, and also help you set new teaching goals.
		4. If done after teaching, it will help you evaluate and monitor how well you have conducted instruction.
	Where	As you teach all types of reading strategies.

3.2 Explaining

Explaining is a teaching strategy that initiates the second stage of strategy instruction — presentation. Basically teachers should explain the declarative, procedural, and conditional knowledge of new information and skills, which has been considered one's knowledge base to accomplish things. Through such explanation, teachers make new information and skills/strategies accessible and comprehensible to students.

In an example of how to teach setting purposes for reading, Eileen Ludwig first reduced the proceeding demands of the strategy by relating it to a concrete task, *going grocery shopping*, "… reading is similar to going shopping in that when we read, we should have a reason, or purpose for reading … (see details in Almasi, 2003, p. 118)". And then Eileen explained the declarative knowledge of setting purposes for reading, "Setting purposes helps guide our reading so we do not get "lost" amid all of the information in the text" (*ibid*). In addition, Eileen continued her explanation by asking her students to watch a video on how to set purposes and practice using the same process while they read (*ibid*).

As previously mentioned, the five stages of instruction are recursive. Thus, teachers should explain new information and skills involved any time in the teaching process. Depending on the teachers' judgment of students' literacy levels and the difficulties of new information and skills, the explanation of relevant declarative, procedural, and conditional knowledge should be scheduled in throughout the teaching process in various orders, separately and/or in combination. Usually declarative knowledge comes up first. As to teaching summarizing strategies, for example, teachers' explanation should include "*what* strategy is being used, *what* knowledge is associated with the strategy, *why* it is being used in a given situation, *why* it is helpful in that situation, *when* the strategy can be used and how to perform the strategy" (Almasi, 2003, p.59). Table 2 summarizes the above mentioned knowledge of the instructional strategy – explaining.

Table 2. Teachers' declarative, procedural and conditional knowledge associated with the instructional strategy of explaining

Knowledge Types		Explaining
Declarative Knowledge		You present the declarative, procedural, and conditional knowledge of new strategies.
What		
Procedural Knowledge		1. Use concrete examples or tasks to explain new strategies. 2. Include how you are going to teach a new strategy in your explanation.
How		
Conditional Knowledge	Why	Your explanation makes new strategies accessible and comprehensible to students.
	When	1. It is done at the presentation stage of teaching new strategies.
		2. Explanation often occurs while modeling a strategy.
	Where	As you teach any new strategies.

Much of the time explanation and modeling accompany each other during the process of teaching a new concept or a new strategy (Almasi, 2003, p. 60). Modeling is another important instructional strategy for the *Presentation* phase, which is often intertwined with rather than separated from explaining so that new concepts or strategies get through to students smoothly. The following section focuses on the instructional strategy of Modeling.

3.3 Modeling

Modeling is identified as a common practice for many types of strategy instruction approaches, such as direct instruction, reciprocal teaching, transactional strategies instruction, and so on (see reviews by Almasi, 2003, chapter 3). It involves teachers' demonstration of how to use a strategy or thinking aloud of their thoughts during reading or strategy use (*ibid*, p. 60; Duffy, 2003, p. 45). Teachers, while teaching their students how to read and how to learn from reading, often model the process of constructing meaning and the application of strategies and skills involved in this process.

Usually, after explaining what new information and strategies are involved in reading, teachers continue to model the procedure of using the new information and strategies to make sure that students understand the explanation. Namely, teachers usually explain the declarative and conditional knowledge of strategy use, and model the procedural knowledge of using the strategies during the reading process. In order to do modeling effectively, teachers should first be aware of what they are doing while reading and how they are doing it. This is exactly what metacognition means: being conscious of the mental processes we use when doing tasks. Only

teachers have an awareness of what and how they do as they read, can they do modeling in the way of "thinking out loud."

For example, when modeling how to use a graphic organizer to record their prior knowledge of what they know about a certain topic, teachers can think aloud as they record the information. Let's say the topic is about pollution. We can think out loud like this, "A web is one way to organize what we know about the topic of pollution. We draw a circle and in the middle put the topic of the text. Since we are reading about pollution, I'm going to put "pollution" in the middle of our circle. Now, I'm going to think about what I know about pollution." Then we record the information and ask students to share what they know about pollution as well. If we change the topic to "summarizing," we can do the same. This topic can then be approached from many aspects, such as the purpose and the types of summarizing, the strategies of summarizing, and the function of summarizing. All these aspects can be organized in a web.

The above examples show that teachers' modeling involves giving a verbal description of invisible thinking in their minds while reading. This is quite different from providing a physical demonstration of certain visible actions such as making a cup cake. The verbal description of the thinking teachers do is just "an *approximation* of the thinking involved (since there is no one way to do any reading task)" (Duffy, 2003, p. 11). Duffy (2003) further stated that individuals have their own unique ways to comprehend certain reading materials so that instead of copying their teachers' thinking-aloud statements, students are only expected to take the talk as a guide, representing the thinking a reader does (p. 11).

Therefore, by modeling the thinking we do during our reading process, we hope to help our students become conscious of how to use reading strategies as they read. They gradually catch on to it and make it their own during the guided practice that follows. In the end, they are put in metacognitive control of their own thinking. Table 3 synthesizes some basic ideas about what modeling is, and how, why, when and where should modeling be used.

Table 3. Teachers' declarative, procedural and conditional knowledge associated with the instructional strategy of modeling

Knowledge Types		Modeling
Declarative Knowledge What		1. You demonstrate the procedure of using a strategy. 2. You are conscious of the mental processes you use when doing tasks. 3. What you model only represent your way of thinking and your approach of using a strategy. Your modeling should serve as a guide for students, but not set steps to follow.
Procedural Knowledge How		1. You may think aloud of the thoughts that occur during using the strategy. 2. You give a verbal description of invisible thinking in your minds while using the strategy.
Conditional Knowledge	Why	1. Modeling can help students become conscious of the procedures of using strategies. 2. It helps them put in metacognitive control of their own thinking while using a strategy.
	When	1. It is done at the presentation stage of teaching new strategies. 2. It is often accompanied by explanation.
	Where	1. As any new strategy is presented. 2. As students need to see how their teachers use a strategy. 3. Your observation of students' performance helps to decide whether modeling is necessary.

The above discussions clearly indicate that explanation and modeling often come together, both of which help students be ready for authentic literacy activities. Nevertheless, teachers should provide explanation and modeling on an "as needed" basis. That is, when a student has difficulty using a reading strategy, and cannot

"catch on" without being told explicitly, his/her teacher should then decide to explain and model how the reading strategy works. Duffy (2003) considered this decision-making action "a judgment call", which should be based on the teacher's observation of the student's performance (p.10). This kind of observation directs the teacher to guide the student's practice while he/she is engaged in reading activities and in the process of reading to learn via the application of that reading strategy. Then, what does guiding practice mean? How can teachers conduct it effectively?

3.4 Guiding Practice

After having explained a particular strategy, provided reasons for using the strategy, and modeled it with authentic reading activities, teachers should then create opportunities for their students to practice the strategy with various reading tasks. Table 4 summarizes some relevant information on *Guiding Practice* in terms of teachers' declarative, procedural, and conditional knowledge.

Table 4. Teachers' declarative, procedural and conditional knowledge associated with the instructional strategy of guiding practice

Knowledge Types		Guiding Practice
Declarative Knowledge		1. You provide students effective guidance when they practice strategies with various reading tasks.
What		2. You should give students sufficient instructional support early when a strategy is introduced and then withdraw support gradually over time until they "own" that strategy.
		3. Guiding practice involves teachers' *scaffolding*.
Procedural Knowledge		1. You may design cooperative learning activities to engage students' practice.
		2. You scaffold and give supports while students need help.
How		3. You may reduce your guidance when they gradually acquire a strategy.
Conditional Knowledge	Why	1. Students need instructional support before they learn to use a strategy independently and confidently.
		2. Guiding practice helps students become adept at using a strategy.
	When	1. It is done after presenting and explaining a new strategy.
		2. It is often accompanied by monitoring progress.
	Where	1. After any new strategy is presented and explained.
		2. As students need guidance when they practice using a strategy.

During the practice stage, initially students should be given sufficient instructional supports to ensure that they are learning to use the strategy confidently. That is why this instructional stage is termed as guiding practice. Nevertheless, the purpose of guiding practice is to help students become adept at using a strategy first, and then "own" the strategy so as to be able to use it independently for their own reading purposes. Thus, this stage of teaching implies the process of "providing strong instructional support early when the strategy is introduced and withdrawing support over time" (Chamot & O'Malley, 1994, p. 65). That is, teacher responsibility is gradually decreasing while giving way to student responsibility when students are adopting the strategy as a regular part of their repertoire.

While guiding the students' practice, teachers have been suggested to design cooperative learning activities so that students can learn to work collaboratively on academic tasks. Cooperative learning is "featured" and can be "used successfully" in the *Preparation, Practice, Evaluation* and*, Expansion* phase of the CALLA instructional sequence respectively for various teaching purposes (Chamot & O'Malley, 1994, p. 21). By accomplishing academic tasks collaboratively, and engaging in enough practice, students can assimilate new information and internalize new strategies so as to apply them flexibly and independently in the long run. For example, in practicing summarizing strategies, students can complete their group reading reports via summarizing, or take

turns to summarize the different sections of a textbook chapter as part of their group project of composing a complete chapter summary.

Guiding students to practice successfully requires different teachers' creative instructional design for various teaching and learning settings. Chamot and O'Malley (1994) considered the process of guiding practice *scaffolding*, which is "an essential component of a teacher's repertoire for strategy instruction" (p. 66). Actually, scaffolding is also a process whereby a teacher monitors students' learning carefully. Any effective guidance should be accompanied by teachers' successful monitoring of their students' progress in practicing and of their own process in guiding practice. Thus, this concept of *scaffolding* will be discussed further in the next section, the focus of which is on the fifth instructional strategy – monitoring progress.

3.5 Monitoring Progress

The purpose of teaching reading strategies is to help students master the strategies for independent reading. While guiding students' practice of using reading strategies, teachers need to observe their performance, and gather evidence to show what progress the students have made in applying those strategies. This instructional practice is termed as teacher monitoring.

Teacher monitoring is different from student monitoring. Student monitoring indicates students' monitoring of their own learning, such as their comprehension of a text, or their use of certain reading strategies. Teacher monitoring, when conducted at the cognitive level, aims at the achievement of instructional purpose. This should be distinguished from teachers' monitoring of strategy instruction itself at the metacognitive level, which targets at the fulfillment of the teaching action itself.

As was mentioned earlier, both the guiding practice and the monitoring progress stage of instruction involve teachers' *scaffolding*. Scaffolding is a complex instructional concept. Pressley (2002) compared a teacher's scaffolding of students' academic learning to the scaffolding of a building under construction (p. 97). The teacher's gradual release of his/her monitoring and guidance when the students are progressing to take all the responsibility for academic tasks is just like the gradual taking down of its scaffolding when a new structure is coming to stand on its own (*ibid*, p. 98). During the process of students' learning to solve a problem, use certain strategies, or apply new knowledge, scaffolding implies the gradual shifts of teachers' assistance from more to less. Clark and Graves (2005) claimed that "At any point in time, teachers should scaffold students enough so that they do not give up on the task or fail at it but not scaffold them so much that they do not have the opportunity to actively work on the problem themselves" (p. 571).

The concept of scaffolding is grounded in Vygotsky's social constructivist view of learning within the *zone of proximal development* (ZPD). ZPD indicates "the distance between what children can do by themselves and the next learning that they can be helped to achieve with competent assistance" (Raymond, 2000, p. 176). By monitoring students' progress in learning a reading strategy, teachers come to know how each student performs in accomplishing an academic task. Students' performance helps teachers make decisions on providing different degrees of scaffolding in various forms. That is to say, the instructional activities provided in scaffolding should be designed to just beyond the level of what the learner can do alone. This principle is aligned with Krashen's *Input Hypothesis* (1981 & 2003), saying that people acquire a language by receiving comprehensible input. This input should be slightly ahead of a learner's current state of knowledge. Then, the teaching strategy, *scaffolding*, provides individualized support so that the learner can accomplish with assistance the tasks that he or she could otherwise not complete. Thus, scaffolding helps the learner proceed through his/her ZPD. Therefore, for reading strategy instruction, scaffolding facilitates students in both building on their prior skills and internalizing new strategies.

It is then clear that scaffolding always accompanies teachers' monitoring of students' progress in learning new information and acquiring new strategies. Chamot and O'Malley (1994) suggested different methods to monitor students' comprehension of the content, such as oral and written questions, exercises, checklists, observation scales, and performance measures. Teachers can adapt these methods to monitor students' application of reading strategies for different reading purposes. Table 5 (see p. 167, this issue) summarizes the idea of scaffolding and other relevant information on *Monitoring Progress* along with the three types of teachers' pedagogical content knowledge – declarative, procedural, and conditional.

Table 5. Teachers' declarative, procedural and conditional knowledge associated with the instructional strategy of monitoring progress

Knowledge Types		Monitoring Progress
Declarative Knowledge What		1. Monitoring progress involves teachers' observation of students' performance. 2. Teachers gather evidence to show what progress students have made in applying strategies. 3. It is always accompanied by teachers' scaffolding of students' progress in learning strategies.
Procedural Knowledge How		1. Ask students' oral or written questions to check their understanding of a strategy. 2. Let students finish certain exercise and observe how they accomplish it. 3. Use checklists or other measurements to see students' progress.
Conditional Knowledge	Why	1. It helps you know students' progress, which gives you hints as to whether you need to update and revise your teaching. 2. It helps you decide to provide how much instructional supports.
	When	It often goes with students' guided practice.
	Where	1. As you want to check students' performance. 2. Before you make decisions to adjust your teaching. 3. Before you set new teaching purposes.

3.6 Providing Effective Feedback

As an essential part of instructional process, teachers need to provide extensive feedback, namely, send back messages or information to learners in terms of their performance. Wiggins (2012) defined the term *feedback* as "information about how we are doing in our efforts to reach a goal" (p. 10). The most important thing about feedback is that it should be useful and sensitive to the learner so as to "modify his or her thinking or behavior to improve learning" (Shute, 2008, p. 153).

The role of feedback in learning has enjoyed a long history of study. Early days' research, both in "psychology itself (e.g. Thorndike, 1913)" and in "the era of programmed instruction (e.g. Pressey, 1950; Skinner, 1968)", has supported that correct responses were strengthened by positive feedback, while errors were weakened because of no provision of positive response. This result has encouraged teachers to provide their students more positive supports to ensure their successful performance (Mason & Bruning, 1999). Since the 1970s when information-processing theory emerged, errors has been considered a part of learning, and the informational role of feedback, especially in terms of error correction, has been highlighted (*ibid*). Then, what kinds of feedback are considered most effective for instruction? Table 6 (see p.168, this issue) provides some basic ideas about what teachers should know about the nature of feedback, the procedure of providing feedback, and the related conditional knowledge of effective feedback provision.

Kulhavy and Stock (1989) proposed that two kinds of information should be conveyed in effective feedback, i.e., verification and elaboration. The former simply means judging the correctness of an answer, while the latter involves giving students pertinent prompts to work out right responses and promoting the most learning. Effective feedback should provide both kinds of information. Feedback elaboration is further divided into three types in computer-based instruction, namely, informational, topic-specific, and response-specific elaboration. Without giving specific responses to individual students' answers, informational elaboration involves the provision of "a framework of relevant information" that students can use to draw a correct answer (Mason & Bruning, 1999). Topic-specific elaboration includes providing more information specifically related to a target topic to guide the students through the correct response without addressing incorrect answers (*ibid*). Response-specific elaboration deals with both correct and incorrect responses more directly by providing explanations specifically about the reasons why a selected answer is wrong and what the right one should be (*ibid*). Research on effective classroom teaching shows that providing response-specific feedback is the most effective in improving student achievement (e.g., Whyte, Karolick, Neilsen, Elder, & Hawley, 1995).

Table 6. Teachers' declarative, procedural and conditional knowledge associated with the instructional strategy of providing effective feedback

Knowledge Types		Providing Effective Feedback
Declarative Knowledge		1. It involves sending back message or information to students as to their performance.
What		2. Feedbacks should be useful and effective in modifying students' thinking or behavior to improve learning.
		3. Effective feedback gives students with two types of information –verification, which judges whether an answer is correct or not, and elaboration, which can be informational, topic-specific, and response-specific, providing different cues to guide students towards a correct answer (see details in Chapter 7).
		4. Response-specific feedback enhances student achievement more than other general forms of feedback.
		5. Positive feedback counts more value.
Procedural Knowledge		1. Observe students' errors in performance and give feedback accordingly.
		2. If their errors do not influence their performance, no feedback is needed.
How		3. If you want students to correct their errors themselves, you just give them verification.
		4. If students are in trouble, you give them both verification and different degrees of elaboration, depending on how much independence you want them to correct their own errors.
Conditional Knowledge	Why	1. Effective feedback is part of the overall dialogue or interaction between teachers and students.
		2. It helps students to be aware of their own errors.
		3. It helps students to learn to correct themselves during learning.
		4. Good feedbacks improve learning process and outcomes.
	When	1. It is often done while you guide students' practice and monitor their progress.
		2. It can be done as a way of evaluation after teaching.
	Where	1. As you notice students' errors.
		2. As you want to evaluate students' performance.

In real classroom teaching, teachers could provide feedback in many forms with the changing levels of verification and elaboration incorporated into their responses. Such feedback should vary according to specific instructional situations as well as different students' characteristics. For example, when students' errors do not influence their performance too much, we can choose to give no feedback. When we want our students to find information related to correct answers on their own, we can just give them verification, telling them whether their answers are correct or incorrect. Or when the students are really in trouble, we would better give them both verification and response-specific elaboration. In addition to providing them with knowledge useful for finding a right answer, we could also explain why an incorrect answer was wrong and why a correct answer is right.

As to how to shift between different levels of feedback according to specific strategy instruction, answers might be diverse because of different teachers' innovation and teaching experiences. Ways to answer this question are open to each teacher. One thing we should keep in mind is that providing effective feedback is not a one-way communication, but part of an overall dialogue or interaction between teacher and student,. Feedback is crucial in educational contexts because good feedback "if delivered correctly" does "improve learning process and outcomes" (Shute, 2008, p. 153).

Table 7. Teachers' declarative, procedural and conditional knowledge associated with the instructional strategy of evaluating

Knowledge Types		Evaluating
Declarative Knowledge What		1. It involves the process of determining how well students' performance is. 2. Teachers' evaluation is different from students' evaluation of their own progress. 3. Students should be trained to do self-evaluation, which is an important metacognitive strategy motivating the development of self-regulated learners. 4. There are two kinds of evaluation: formative evaluation focusing on the *process*, and summative evaluation on the *outcome*.
Procedural Knowledge How		1. Use checklist or summary rubric to do evaluation. 2. Guide full class discussion on the effectiveness of strategy use. 3. Students keep dialogue journals for self-evaluation and sharing with teachers.
Conditional Knowledge	Why	1. It helps both teacher and student know how well strategy use is. 2. It helps students adjust their learning. 3. It helps you update and revise your teaching.
	When	1. It follows or is integrated with guiding practice and monitoring progress. 2. It is done after teaching and is often kept in records to see students' progress in learning.
	Where	1. As you want to know students' progress in strategy use. 2. Before you make decisions to adjust your teaching. 3. Before you set new teaching purposes.

3.7 Encouraging Assessment

At the evaluation stage of strategy instruction, assessment is the process of determining how well students do in terms of learning and strategy use. Similar to the difference between teacher monitoring and student monitoring, evaluation and assessment can also be done from both the teacher's and the student's perspective.

From the teacher's perspective, the teacher can conduct evaluation at two levels, both cognitively and metacognitively. At the cognitive level, the teacher evaluates students' progress to push the learning process, while at the metacognitive level, the teacher evaluates his/her own instructional processes to control the success of his/her own teaching. From the students' perspective, self-evaluation is considered an important metacognitive strategy that motivates the development of self-regulated learners. Students need to learn how to evaluate their own progress of learning and strategy use. Students' self-evaluation is specifically emphasized in the CALLA instructional sequence. Students are led to judge the effectiveness of applying a certain reading strategy during reading. They are also asked to determine how well they have used the strategy at the end of academic activities. Bhola (1990) termed these two kinds of evaluation respectively as *formative* evaluation focusing on the *process*, and *summative* evaluation focusing on the *outcome*.

For both types of evaluation, teachers should then provide appropriate assessment tools, such as a strategy checklist, or a summary rubric. CALLA suggests that teachers guide "a full class discussion of the strategies that seemed most useful for the assignment." As to students themselves, they can "keep dialogue journals about strategy use and share these with the teachers" (see details in Chamot & O'Malley, 1994, p. 70). CALLA also purports that "evaluation activities can be cooperative or individual, and can take place in class or as a home assignment" (*ibid*, p. 91). Schunk (2003) recommended teaching students to rate their progress by using a self-report scale, and then holding discussions with them about their ratings with the provision of feedback. Self-evaluation is an important strategy for students to perceive their own progress in learning, and keep motivated (Schunk, 2003). Table 7 (see p. 169, this issue) provides a summary of teachers' declarative, procedural and conditional knowledge associated with assessment.

Therefore, the evaluation of students' progress is an important instructional phase following and/or integrating with guiding practice and monitoring progress activities. Both teachers and students can generate opinions and explanations for phenomena occurred during the learning process and at the outcome of learning and strategy use. Such evaluation should be kept in record and be compared from time to time so that we can see students' gradual and continuous progress in learning.

However, students' learning process should not end at the phase of evaluation. Only after students are able to expand their learning of new knowledge and new strategies systematically and formally to other situations rather than those created by teachers, can we conclude that they have internalized and owned the new knowledge and the new strategies. Thus, the next discussion turns to the instructional phase of promoting transfer.

3.8 Promoting Transfer

The purpose of encouraging transfer is to encourage students to expand the application of new information and new skills/strategies to different contexts other than those created by the teacher. Some inspirations to promote strategy transfer can be generated from the research on transfer of learning. For example, Day and Goldstone (2012) suggested the essential role of perception-action processes in knowledge transfer. Thus, providing students with chances to form spatial and mechanical representations of situations or act out the procedures of strategy use might be effective in improving transfer. And the primitive elements theory of cognitive skills, proposed by Taatgen (2013), could help break down skills into "smallest possible elements, some of which are specific to task but most of which are general" (p.439). It is the task-general elements that can be applied to other tasks, and thus are fundamental to transfer (Taatgen, 2013, p. 440). Therefore, one of the ways to facilitate strategy transfer is to help students analyze the underlying structure of skills, and distinguish task-general rules from task-specific knowledge. Table 8 is a brief summary of some basic ideas on promoting transfer, along with teachers' declarative, procedural and conditional knowledge.

Table 8. Teachers' declarative, procedural and conditional knowledge associated with the instructional strategy of encouraging transfer

Knowledge Types		Encouraging Transfer
Declarative Knowledge		1. It encourages students to expand the application of new strategies to different situations.
What		2. Cooperative learning activities are effective in improving students' transfer of strategy use.
Procedural Knowledge		1. Examine textbooks required by other content areas to see opportunities of encouraging transfer.
How		2. Survey students' real-world situations for chances of encouraging strategy use.
		3. Design cooperative learning activities both in class and off class.
Conditional Knowledge	Why	1. It helps students practice strategy use and evaluate strategy application in different contexts.
		2. It helps students to internalize strategy application.
	When	It is done when students become adept at applying the strategy in specified contexts.
	Where	As you want students to integrate the application of new strategies into their existing knowledge base, and apply them to real-world situations.

In the expansion phase of a lesson, teachers need to give students a variety of practice opportunities so that they can use and reflect on the new concepts and skills they have learned, integrate them into their existing knowledge framework, and apply them to real-world situations. Taking summarizing strategy instruction as an example, teachers can provide their students with opportunities to compare the differences in composing different types of summaries, such as summarizing a story, and summarizing a chapter from a history textbook. Teachers can design summarizing tasks of various degrees of difficulties to match their students' different literacy levels. Moreover, at the expansion stage, students should be given chances to reflect on their own

summarizing activities, and evaluate the importance of using summarizing strategies. While reading to learn in content areas, students should also be pushed to integrate the strategies they are acquiring to use with other reading strategies or study skills they have acquired. Sometimes students could be asked to cooperate in small groups to write a summary of a collection of texts since cooperative learning activities have been considered by researchers an effective instructional approach to improve students' performances as well as their literacy skills (e.g., Chamot & O'Malley, 1994).

4. Conclusion

This article first gives a brief review of Pressley's General Outline for Strategy Instruction (1990), Almasi's Strategy Instruction Model (2003), and Chamot and O'Malley's CALLA (1994), focusing on generating the critical components of effective strategy instruction valued in these three approaches. The product of this review is a synthesized reading strategy instruction model applicable to ESL/EFL educational contexts. This model consists of one key component, "a five-stage strategy instruction procedure," and two general principles, "reducing processing demands," and "organizing students' active involvement," all of which creates and is created by a safe and risk-free environment. In such an environment students learn to use strategies actively and consciously with motivation and assistance. The "five-stage strategy instruction procedure" is comprised of eight general cognitive instructional strategies, namely, activating background knowledge at the Preparation stage, explaining and modeling at the Presentation stage, guiding practice, monitoring progress, and providing effective feedback at the Practice stage, evaluating at the Evaluation stage, and encouraging transfer at the last stage of Expansion. Moreover, while these two principles have mutual effects on each other, they together facilitate the smooth proceedings of the "five-stage strategy instruction procedure." This synthesized strategy instruction model is a recursive one, with which ESL/EFL teachers could help their students' acquisition of reading strategies proceed from the subconscious stage to the active and conscious stage until they are able to internalize the strategies and use them automatically. In brief, the final goal of using this instruction model is to promote students' metacognition in reading strategy use, and eventually in reading comprehension. For this end, this synthesized strategy instruction model tends to ensure ESL/EFL teachers' instruction *for* metacognition.

The second section of this paper focuses on the elaboration of the eight instructional strategies along with the three types of teachers' pedagogical content knowledge: declarative, procedural, and conditional. In other words, this elaboration is mainly about what the instructional strategy is, how to apply it, and when, where, and why it is used respectively. The conduction of these instructional strategies and the arrangement of the five instructional stages do not have to be linear, but can be recursive and flexible to meet the demands of different teaching tasks. Furthermore, different readers in the same classroom may vary in their reading or learning styles, language proficiency levels, and awareness of strategy use. Choices of different instructional strategies could meet their diverse demands. Teachers, thus, cannot attribute to only one group and adopt only one sequence of instructional strategies all along. ESL/EFL teachers should then shift their use of different instructional strategies to meet the needs and expectations of their students who are at different acquisition stages and of different reading proficiency. This must challenge ESL/EFL teachers' capability of making decisions on when, where, why, and how to apply these instructional strategies recursively and flexibly as well as their ability of controlling and managing their own teaching processes. That is, while applying this synthesized strategy instruction model to a wide range of ESL/EFL educational settings, ESL/EFL teachers should be able to teach *with* metacognition.

It is hoped that the formal knowledge synthesized and elaborated in this article provides a knowledge base for ESL/EFL teachers to conduct reading strategy instruction effectively *with* and/or *for* metacognition. Such knowledge should be part of the targeted group of teachers' pedagogical content knowledge. The eventual achievement of this goal depends on the actual practice by various ESL/EFL teachers. To test the effectiveness of this synthesized strategy instruction model, further investigations into its application by ESL/EFL teachers at varieties of ESL/EFL contexts are highly needed.

Acknowledgements

This paper is supported by the author's 2014 Research Project on College EFL Teachers' Metacognitive Knowledge of Reading Strategy Instruction (Grant KX171339) sponsored by Shanghai International Studies University, China.

References

Aghaie, R., & Zhang, L. J. (2012). Effects of explicit instruction in cognitive and metacognitive reading

strategies on Iranian EFL students' reading performance and strategy transfer. *Instructional Science, 40*(6), 1063-1081. http://dx.doi.org/10.1007/s11251-011-9202-5

Allen, S. (2003). An analitic comparison of three models of reading strategy instruction. *IRAL, 41*(4), 319-338. http://dx.doi.org/10.1515/iral.2003.015

Almasi, J. F. (2003). *Teaching strategic processes in reading*. New York, NY: Guilford Press.

Anderson, R.C., & Pearson, P.D. (1984). A schema-theoretic view of basic processes in reading. In P.D. Pearson, R. Barr, M. L. Kamil, & P. Mosenthal (Eds.), *Handbook of reading research.* White Plains, NY: Longman.

Anderson, V. (1992). A teacher development project in transitional strategy instruction for teachers of severely reading-disabled adolescents. *Teaching & Teacher Education, 8*, 391-403. http://dx.doi.org/10.1016/0742-051X(92)90064-A

Babbs, P. J., & Moe, A. J. (1983). Metacognition: A key for independent learning from Text. *The Reading Teacher, 32,* 422-426. Retrieved from http://www.jstor.org/stable/20198244

Bhola, H. S. (1990). *Evaluating "Literacy for development" projects, programs and campaigns: Evaluation planning, design and implementation, and utilization of evaluation results.* Hamburg, Germany: UNESCO Institute for Education; DSE [German Foundation for International Development]. xii, 306 pages. Retrieved from http://www.sil.org/lingualinks/literacy/referencematerials/GlossaryOfLiteracyTerms/WhatIsEvaluation.htm

Blaskowski, D. (1995). *KWHL*. Retrieved from http://www.ncrel.org/sdrs/areas/issues/students/learning/lr2dogmo.htm

Brown, A. L. (1980). Metacognitive development and reading. In R. J. Spiro, B. C. Bruce, & W. Brewer (Eds.), *Theoretical issues in reading comprehension* (pp. 453-481). Hillsdale, NJ: Lawrence Erlbaum Associates.

Brown, A.L. (1987). Metacognition, executive control, self-regulation and other more mysterious mechanism. In F. E. Weinert, & R. H. Kluwe (Eds.), *Metacognition, motivation, and understanding* (pp. 65-116): Hillsdale, NJ: Lawrence Erlbaum Associates.

Brown, R., Pressley, M., Van Meter, P., & Schuder, T. (1996). A quasi-experimental validation of transactional strategies instruction with low-achieving second-grade readers. *Journal of Educational Psychology, 88*, 18-37. http://dx.doi.org/10.1037/0022-0663.88.1.18

Chamot, A. U., & O'Malley, J. M. (1986). *A Cognitive Academic Language Learning Approach: An ESL content-based curriculum*. Wheaton, MD: The National Clearinghouse for Bilingual Education.

Chamot, A. U., & O'Malley, J. M. (1994). *The CALLA handbook: Implementing the Cognitive Academic Language Learning Approach*. Reading, MA: Addison Wesley.

Chamot, A. U., & O'Malley, J. M. (1996). The Cognitive Academic Language Learning Approach: A model for linguistically diverse classrooms. *The Elementary School of Journal, 96*, 259-273. http://dx.doi.org/10.1086/461827

Clark, K. F., & Graves, M. F. (2005). Scaffolding students' comprehension of text. *The Reading Teacher, 58*(6), 570-580. http://dx.doi.org/10.1598/RT.58.6.6

Connelly, F. M., & Clandinin, D. J. (1988). *Teachers as curriculum planners*. New York: Teacher College Press.

Cooper, R. (1993). *Towards a general semantic framework*. Paper presented at the Dagstuhl Seminar "Semantic Formalisms in Natural Language Processing", 22nd-26th February, 1993. Retrieved from http://www.researchgate.net/publication/2706790_Towards_a_General_Semantic_Framework

Day, S. B., & Goldstone, R. L. (2012). The import of knowledge export: connecting findings and theories of transfer of learning. *Educational Psychologist*, *47*(3), 153-176. http://dx.doi.org/10.1080/00461520.2012.696438

Deshler, D. D., & Schumaker, J. B. (1994). Grounding intervention research in the larger context of schooling: A response to Pressley and Harris. *Educational Psychology Review, 6*(3), 215-222. http://dx.doi.org/10.1007/BF02213183

Deshler, D. D., Schumaker, J. B., & Lenz, B. K. (1984). Academic and cognitive interventions for LD adolescents (Part I). *Journal of Learning Disabilities, 17*(2), 108-117. http://dx.doi.org/10.1177/002221948401700211

Dornan, R. W., Rosen, L. M., & Wilson, M. (2001; 2005). *Within and beyond the writing process in the secondary English classroom*. Needham Heights, MA: Allyn & Bacon.

Duffy, G. G. (2003). *Explaining reading: A resource for teaching concepts, skills, and strategies*. New York, NY: Guilford Press.

Duffy, G. G., & Roehler, L. R. (1986). *Improving classroom reading instruction: A decision-making approach*. New York: Random House.

Duffy, G. G., & Roehler, L. R. (1987). Improving reading instruction through the use of responsive elaboration. *The Reading Teacher, 40*, 514-520. http://dx.doi.org/10.1086/461500

Duffy, G. G., & Roehler, L. R., Putman, J. (1987). Putting the teacher in control: Basal textbooks and teacher decision making. *Elementary School Journal, 87*, 357-366.

Fenstermatcher, G. D. (1994). The knower and known: the nature of knowledge in research on teaching. In L. Darling-Hammond (Ed.), *Review of research in education* (Vol. 20, pp. 3-56). Washington, DC: American Educational Research Association.

Flavell, J. H. (1976). Metacognitive aspects of problem solving. In L. Resnick (Ed.), *The nature of intelligence* (pp. 231-235). Hillsdale, NJ: Erlbaum & Associates.

Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-development inquiry. *American Psychologist, 34*, 906-911. http://dx.doi.org/10.1037/0003-066X.34.10.906

Gersten, R., & Carnine, D. (1986). Direct instruction in reading comprehension. *Educational Leadership, 43*, 70-78.

Garner, R. (1987). *Metacognition and reading comprehension*. Norwood, NJ: Ablex.

Hacker, D. J. (1998). Definitions and empirical foundations. In D. J. Hacker, J. Dunloky, & A. C. Graesser (Eds.), *Metacognition in educational theory and practice* (pp. 1-23). Mahwah, NJ: Lawrence Erlbaum Associates.

Hartman, H. J. (2001). *Metacognition in learning and instruction: Theory, research, and practice*. Norwell, MA: Kluwer Academic Publishers.

Hirsch, E. D. (2003). Reading comprehension requires knowledge—of words and the world: Scientific insights into the fourth-grade slump and the nation's stagnant comprehension scores. *American Education of Teachers, Spring*, 10-29.

Krashen, S. D. (1981). *Second language acquisition and second language learning*. Oxford: Pergamon Press Inc.

Krashen, S. D. (2003). *Exploration in language acquisition and use: The Taipei lectures*. Portsmouth, NH: Heineman.

Kuhn, D., & Pearsall, S. (1998). Relations between metastrategic knowledge and strategic performance. *Cognitive Development, 13*, 227-247. http://dx.doi.org/10.1016/S0885-2014(98)90040-5

Kulhavy, R. W., & Stock, W. A. (1989). Feedback in written instruction: The place of response certitude. *Educational Psychology Review, 1*(4), 279-308. http://dx.doi.org/10.1007/BF01320096

Mason, J & Bruning, R. (1999). Providing feedback in computer-based instruction: What the research tells us. Retrieved from http://dwb.unl.edu/Edit/MB/MasonBruning.html

McKoon, G., & Ratcliff, R. (1992). Inference during reading. *Psychological Review, 99,* 440-466. http://dx.doi.org/10.1037/0033-295X.99.3.440

MYERS, M. and PARIS, S. (1978). Children's metacognitive knowledge about reading. *Journal of Educational Psychology, 70*, 680-690. http://dx.doi.org/10.1037/0022-0663.70.5.680

Moore, D. W., Alvermann, D. A. & Hinchman, K. A. (Eds., 2000). *Struggling adolescent readers: A collection of teaching strategies*. Newark, DE: International Reading Association.

Moshman, D. (1982). Exogenous, endogenous, and dialectical constructivism. *Developmental Review, 2*, 371-384. http://dx.doi.org/10.1016/0273-2297(82)90019-3

Ogle, D. M. (1986). K-W-L: A teaching model that develops active reading of expository text. *The Reading Teacher, 39*, 564-570. http://dx.doi.org/10.1598/RT.39.6.11

Ogle, D. S. (1986). K-W-L group instructional strategy. In A. S. Palincsar, D. S. Ogle, B. F. Jones, & E. G. Carr (Eds.), *Teaching reading as thinking* (Teleconference Resource Guide, pp. 11-17). Alexandria, VA: Association for Supervision and Curriculum Development.

Palincsar, A. S., & Brown, A. L. (1984). Reciprocal teaching of comprehension-fostering and monitoring activities. *Cognition and Instruction, 1*, 117-175. http://dx.doi.org/10.1207/s1532690xci0102_1

Palincsar, A. S., & Brown, A. L. (1986). Interactive teaching to promote independent learning from text. *The Reading Teacher, 39*(8), 771-777. Retrieved from http://www.jstor.org/stable/20199221

Pressley, M. (1990). *Cognitive strategy instruction that really improves children's academic performances*. Cambridge, MA: Brookline Books.

Pressley, M. (1986). The relevance of the good strategy user model to the teaching of mathematics. *Educational Psychology, 21*, 139-161. http://dx.doi.org/10.1207/s15326985ep2101&2_8

Pressley, M. (2000). What should comprehension instruction be the instruction of? In M. L. Kamil, P. B. Mosenthal, P. D. Pearson, & R. Barr (Eds.), *Handbook of reading research: Volume III* (pp.545-561). Mahwah NJ: Erlbaum.

Pressley, M. (2001). *Effective beginning reading instruction*. Executive Summary and Paper Commissioned by the National Reading Conference. Chicago, IL: National Reading Conference.

Pressley, M. (2002). *Reading instruction that works: The case for balanced teaching* (2nd ed.). New York: Guilford.

Pressley, M., Harris, K. R., & Marks, M. B. (1992). But good strategy instructors are constructivists! *Educational Psychology Review, 4*, 3-31. http://dx.doi.org/10.1007/BF01322393

Pressley, M., Symons, S., Snyder, B. L., & Cariglia-Bull, T. (1989). Strategy instruction comes of age. *Learning Disability Quarterly, 12*, 16-30. http://dx.doi.org/10.2307/1510249

Pressey, S. L. (1950). Development and appraisal of devices providing immediate automatic scoring of objective tests and concomitant self-instruction. *The Journal of Psychology, 29*, 417-447. http://dx.doi.org/10.1080/00223980.1950.9916043

Readence, J. & Bean, T., & Baldwin, R. (1981). *Content area reading: An integrated approach*. Dubuque, Iowa: Hunt Publishing Company.

Schunk, D. H. (2003). Self-efficacy for reading and writing: Influence of modeling, goal setting, and self-evaluation. *Reading and Writing Quarterly,* 19, 159-172.

Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher, 15*, 4-14. http://dx.doi.org/10.3102/0013189X015002004

Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational View, 57*, 1-22. http://dx.doi.org/10.17763/haer.57.1.j463w79r56455411

Shute, V. J. (2008) Focus on formative feedback. *Review of Educational Research, 78*(1), 153-189. http://dx.doi.org/10.3102/0034654307313795

Skinner, B. F. (1968). *The technology of teaching*. New York: Meredith Corporation.

Stanovich, K. E., & Cunningham, A. E. (1993). Where does knowledge come from? Specific associations between print exposure and information acquisition. *Journal of Educational Psychology, 85*, 211-229. http://dx.doi.org/10.1037/0022-0663.85.2.211

Szabo, S. (2006). KWHHL: A student-driven evolution of the KWL. *American Secondary Education, 34* (3), 57-66. Retrieved from http://www.jstor.org/stable/41064583

Taatgen, N. A. (2013). The nature and transfer of cognitive skills. *Psychological Review, 120*(3), 439-471. http://dx.doi.org/10.1037/a0033138

Tsang, Wai-king. (2004). Teachers' personal practical knowledge and interactive decisions. *Language Teaching Research, 8*(2), 163-198. http://dx.doi.org/10.1191/1362168804lr139oa

Thorndike, E. L. (1913). *Educational Psychology. Volume 1: The Original Nature of Man*. New York: Columbia University, Teachers College.

Whyte, M. M., Karolick, D. M., Neilsen, M. C., Elder, G. D., & Hawley, W. T. (1995). Cognitive styles and feedback in computer-assisted instruction. *Journal of Educational Computing Research, 12*(2), 195-203. http://dx.doi.org/10.2190/M2AV-GEHE-CM9G-J9P7

Wiggins, G. (2012). Seven keys to effective feedback. *Educational Leadership, 70* (1), 10-16. Retrieved from http://www.ascd.org/publications/educational-leadership/sept12/vol70/num01/Seven-Keys-to-Effective-Feedback.aspx

Xie, Man-lan (2014). Narrative inquiry into the short-term development of pedagogical content knowledge of foreign language teachers. *Journal of Guangdong University of Education, 34*(2), 26-32.

Young, A. E. (2010). *Explorations of metacognition among academically talented middle and high school mathematics students* (Order No. 3413529). Retrieved from http://search.proquest.com/docview/749394961?accountid=12725