Constructing a Metacognitive Knowledge Framework for Post-Secondary EFL Reading Teachers' Summarizing Strategies Instruction with Expository Text: A Case Study, Phase I

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This article reports on the first phase of a case study done by a Chinese post-secondary EFL reading teacher on her exploratory inquiry into the metacognitive teaching knowledge needed by EFL Reading teachers to teach summarizing strategies with expository text to EFL undergraduates. Guided by a formalized model of instructional materials development, Phase I was an exploring process, starting from constructing a general metacognitive knowledge framework and proceeding to elaborate the detailed framework of the actual metacognitive knowledge needed by EFL reading teachers as to summarizing strategies instruction with expository text. The results of phase I were summarized in a monograph directed at teaching post-secondary EFL Reading teachers the framework and actual metacognitive knowledge they needed to know. This monograph was positively reviewed by a cross-sectional panel of 6 experts. This article concludes with a critical reflection on the methodology and value of this metacognitive knowledge exploration.

Keywords: Metacognition; Metacognitive Knowledge; Theory Creation; Instructional Materials Development; English as a Foreign Language; Teacher Training

Introduction

Since Flavell's (1979) landmark article on metacognition, and his seminal definition of metacognition as "knowledge and cognition about cognitive phenomena" (p. 906), Flavell's fuzzy concept of metacognition has inspired an increasing number of researchers to elaborate its component parts and explore its applications to educational practice across all domains. In particular, since Flavell (1979) initially tied the term, *metacognition*, through the phrase "cognitive monitoring", to self-regulated learning, it has been established that "metacognition is a [necessary but not sufficient] key to successful learning" (Griffith & Ruan, 2005: p. 16). Therefore, as facilitators and promoters of students' success in learning, teachers need to understand, both of their own and their students' metacognition.

Flavell's (1979) metacognition model incorporates metacognitive knowledge and metacognitive experiences. Metacognitive knowledge refers to the combinations of information around three knowledge variables (i.e., self, task, and strategies), while metacognitive experiences are "items of metacognitive knowledge that have entered consciousness" (p. 908). Built on Flavell's model, past research has succeeded in portraying the role of metacognition in successful reading (e.g., Dagostino & Carifio, 1994a, 1994b; Brown et al., 1981; Brown, 1985; Baker & Brown, 1984), or in Pressley's (2002) popular term and definitions of what "the metacognitively sophisticated reader" is. It is now agreed that the metacognitively sophisticated readers not only have the knowledge of cognition, that is, the knowledge about their "own cognitive resources, the reading task, and the compatibility between the two", but are capable of regulating their own cognition, namely, having "a regulatory mechanism", such as "the deployment of a remedy", to solve comprehension problems during reading (Griffith & Ruan, 2005: p. 7).

Many studies have also been conducted on how teachers can promote students' metacognition during reading. For example, some instructional methods have been demonstrated to effectively develop self-regulated reading, such as Reciprocal Teaching (Palinscar & Brown, 1984), Think-Alouds (Baumann, Jones, & Seiferrt-Kessell, 1993; Baker, 2002; Massey, 2003; Block & Israel, 2004; Israel & Massey, 2005), and Question-Answer Relationships (Raphael, 1986). With these advances in both metacognition theory and its application to the field of literacy, reading teachers have been called upon to promote students' metacognitive development in their reading instruction (Pressley, 2002). However, this directive or recommendation is a challenging task for reading teachers, especially when limited research in either English-speaking countries (e.g., the United States) or non-English-speaking countries, such as China, exists on reading teachers' own metacognitive skills and development.

As previously stated, Pressley (2002) proposed the popular term (and buzz word) of "the metacognitively sophisticated reading teacher," and hypothesized that the metacognitively sophisticated reading teacher should know "what good readers know, can use, and do use decoding and comprehension strategies when they are needed" (p. 305), and that "the comprehension strategies used by good comprehenders can be taught, beginning with teacher explanations and modeling of the strategies followed by scaffolded student practice of compre-

hension strategies during reading" (p. 306). Hartman (2001) further clarified the general idea of "teaching metacognitively" by distinguishing teaching *with* metacognition from teaching *for* metacognition. Teaching *with* metacognition refers to teachers' thinking about their own thinking regarding their teaching before, during, and after conducting lessons to increase instructional effectiveness. Teaching *for* metacognition indicates that "teachers think about how their instruction will activate and develop their students' metacognition, or think about their own thinking as learners" (Hartman, 2001: p. 149). Given this distinction, what Pressley emphasized is that the metacognitively sophisticated reading teacher should teach *for* metacognition. Nevertheless, no matter whether teaching *with* or *for* metacognition, teachers often base their decisions, consciously or unconsciously, on their metacognitive knowledge of using *some* optional and optimal instructional methods to teach *something* to *someone*. Researchers have emphasized that metacognitive knowledge is a basis for particular metacognitive experiences (Flavell, 1979; Garner, 1987). Therefore, it is worthwhile to explore what the metacognitively sophisticated reading teacher should know; that is, what metacognitive knowledge reading teachers should have in order to be able to teach *with* metacognition and know when, how and whether or not to promote students' metacognition during reading. As previously stated, specific answers to the aforementioned questions are not currently available in the research literature and just better formulating these questions and finding initial tentative answers would be a great step forward in this area. Further, given that so little was specifically known, a case study research approach was the best strategy to both explore and answer these questions and the evolutions of initial tentative answers given the open ended and evolving nature of the case study method.

Purpose

This article reports the design and the first phase of a case study of a Chinese post-secondary EFL reading teacher's exploration of metacognition and metacognitive knowledge as both pertained specifically to defining and elucidating the metacognitive skills and knowledge EFL reading teachers needed to teach summarizing strategies with expository text to EFL undergraduates. Phase I of this case study was finding, adapting and utilizing a formal and validated model for creating a monograph (referred to as *The Monograph* in the following) that documented and formally codified the results and products of the case study done. Part of this codification was documenting the researcher's construction of a general metacognitive knowledge framework and the elaboration of that framework in terms of what exactly a post-secondary EFL reading teacher's metacognitive knowledge consists of as to teaching a specific reading strategy (*summarizing*) with a specific genre of text (*expository text*) in order to teach *with* metacognition to a certain group of students (*Chinese EFL undergraduates*). Thus, the focus of this article is on the design of the case study and on the process and product (*The Monograph*) of the metacognitive knowledge exploration during Phase I, rather than the method, process and findings of the product validation in Phase II. The general cognitive and information processing model and theory of learning used in this case study is detailed and summarized by Carifio (2005).

Design of the Case Study

As previously stated, this case study aimed to develop and

validate a monograph to enrich post-secondary EFL reading teacher's metacognitive knowledge of teaching summarizing strategies with expository text to Chinese undergraduates. This exploration of metacognitive knowledge, therefore, requires comprehensive literature reviews and content evaluation related to such diverse areas of research as metacognition, text comprehension, reading strategies instruction, TESOL and so on. This type of educational research falls within the academic activities conceptualized as purposive social actions, the results of which involve both anticipated and unanticipated findings and outcomes of varying degree during the process of inquiry (Perla & Carifio, 2011; Merton, 1936). That is to say, the process of developing and validating *The Monograph* might yield certain theoretical frameworks, syntheses, ideas and views that are not known beforehand besides those expected and justified for and by defined purposes in the specific research contexts. To parameterize and gauge emergent unanticipated findings, together with anticipated ones during the course of this academic and theoretical exploration, a general structured model and theory was applied to the design of this case study.

Base of the Research Design: A Formalized Model

The model applied to the research design was a formalized model of theory or construct creation and instructional materials development developed by Carifio (1975, 1977) and further elaborated by Perla (2006) and Perla and Carifio (2011). **Figure 1** shows a simplified version of Carifio-Perla model. There are three macro components to the model (i.e., the CHQKB, ARCs and VFTE in **Figure 1**). The acronym CHQKB in Box "A" in **Figure 1** stands for "Critical & High Quality Knowledge Base" that is "selected based on a critical selection criterion" and represents "the content that will be translated into instructional materials" or what is referred to as Appropriate Representations and Communications or ARCs (Perla & Carifio, 2011: p. 95). To derive a CHQKB is the first step of any model used for conducting most kinds of inquiry. A CHQKB can be established and refined from the relevant literature for a field, discipline or topic by data mining theory, processes and models (Perla & Carifio, 2011). As previously stated, the ARCs in Box "B" in **Figure 1** represent "Appropriate Representations and Communications" that "include but are not limited to instructional materials such as written instructional texts, instructor's manuals, laboratory exercises, charts and diagrams." Some form of rationale and justification of the initial selection of the representations and communications is required. From his inquiry into developing instructional materials in the domain of the nature of science, Perla pointed out that the selection process can be informed by theories that "include but are not limited to theories of learning, instruction, and information processing as well as philosophical considerations related to the nature of the material …" (Perla & Carifio, 2011: p. 95). The VFTE component in Box "C" in **Figure 1** stands for "Validation and Field Testing for Effectiveness," the process of which "involves statistical psychometric procedures and principles used to generate information and data that address the actual (experimental) appropriateness and validity of a selected instructional representation and communication for a stipulated group" (Perla & Carifio, 2011: p. 95).

In this macro model framework, micro models are also part of each component including 1) data mining theories to facilitate the establishment, screening, and refinement of what con-
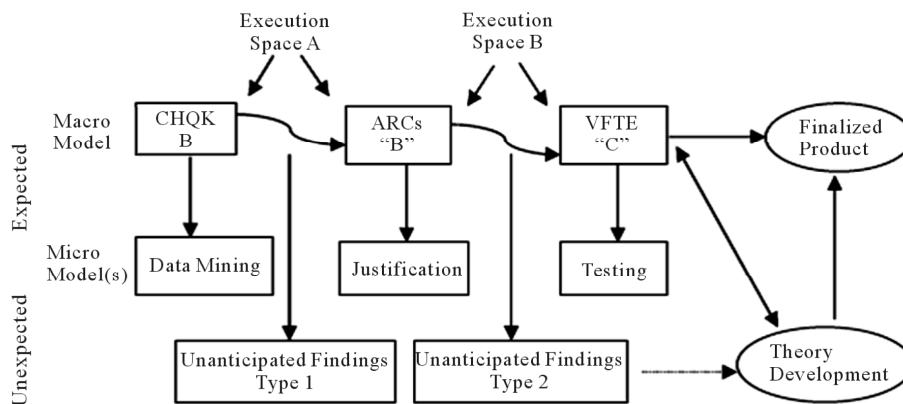
Figure 1.
A simplified version of Carifio-Perla Model (2011) for instructional materials development. CHQKB = Critical and high quality knowledge Base; ARC = Appropriate representations and communications; VFTE = Validated and field-tested for effectiveness. See original figures in Perla and Carifio (2011).

stitutes appropriate and high quality academic materials; 2) theories to justify the selection of the representations and communications; and 3) testing procedures and principles to measure "content and construct validity, logical validity, ecological validity, internal and external validity and instrument or treatment reliability" (Perla & Carifio, 2011: p. 96).

This instructional materials development model, therefore, begins with the development of a comprehensive and high quality knowledge base (i.e., the CHQKB) in a particular domain, the key and critical features of which are then translated into appropriate instructional materials (ARCs) for a particular audience or set of audiences. Finally, the ARCs should be *Validated and Field-Tested for Effectiveness* (VFTE), "ultimately leading to high quality Instructional Materials that are subject to revisions and modifications" (Perla & Carifio, 2011: p. 100). Between the macro-model elements, namely, CHQKB, ARCs and VFTE, is the *execution space* that "represents the researcher's execution and operationalization of one macro model component (e.g., the CHQKB) to a sufficiently developed state to get to the next macro model component (e.g., ARC)" and so on to actual validation and field testing (Perla & Carifio, 2011: p. 102). As shown in **Figure 1**, *execution space* A is where the process of translating the CHQKB into ARCs begins and ends when acceptable ARCs have been generated. And the validation and field-testing of the ARCs is conducted in *execution space* B. While executing the research, it is in the execution spaces that the researcher "encounters the practical limitations, difficulties, frustrations and insights of going from *theory* to *practice* or from *theory* to *product*" (Perla & Carifio, 2011: p. 102), leading to some unexpected and unanticipated results and findings more often than not.

Therefore, the process of developing any academic materials is far from linear and ideal. Even when "some things" go "as expected," as shown in the "expected" area from points A to B to C in **Figure 1**, the *expected* findings or results are only those outcomes and events "that are perceived directly applicable, useful, or related to the research (within the scope of expectation and execution)" as opposed to all of the outcomes and events that may have occurred which includes the unexpected outcomes and events that are quite often (foolishly) ignored by researchers, developers and daily practitioners (Perla & Carifio, 2011: p. 101). It is these unexpected outcomes and events (i.e.,

the anomalies) that are critically important as both are typically what lead to model, theory, view and belief modifications, revisions and changes. The development process, therefore, is actually dynamic, and most of the time, impacted by some important but unexpected findings and events that are "both *directly* and *indirectly* related to developing and/or validating instructional materials outside the scope of expectation and execution, or at least exist along the periphery of the scope of expectation and execution" (Perla & Carifio, 2011: p. 101). As shown in the "unexpected" area in **Figure 1**, two types of unexpected findings, Type 1 and Type 2, are postulated by Perla and Carifio (2011), which are associated with the difficulties, frustrations, problems and insights that occur respectively in *execution space* A and B. Type 1 unexpected findings are logical, reasoning-related and academic in character, whereas Type 2 unanticipated findings are observational and evidence-based in character and any inquiry may have many Type 1 and Type 2 unanticipated findings associated with it as the two types are not mutually exclusive and independent in character as well as having "impeccable" logic or reasoning does not mean that one cannot and will not have unanticipated contradictory observations or evidence that indicates that one's logic was not as "impeccable' as one initially thought. The Carifio-Perla model is actually an information processing model of inquiry processes and results that has several different metacognitive elements built into it. Also, the Carifio-Perla model has been successfully used and validated in over a dozen research and development efforts and projects in several different areas and fields (see Perla & Carifio, 2011, for further details on these last two points).

Design of the Research: A Two-Phase Case Study

Using the Carifio-Perla's model, this study was designed to consist of two phases. As previously stated, the primary focus of this research was to develop and validate *The Monograph* which synthesized post-secondary ESL/EFL reading teachers' metacognitive knowledge of teaching summarizing strategies with expository text. Thus, Phase I focused on the development of *The Monograph*, and Phase II on its validation. Phase I, the focus of this article, consisted of the generation of a theoretical framework outline of metacognitive knowledge, the elaboration

of the framework outline for post-secondary ESL/EFL reading teachers as to teaching summarizing strategies with expository text, and then the actual development and writing of the eight chapters of *The Monograph*.

The following sections then depict the execution of Phase I study, which involves *execution space* A as described in Carifio-Perla Model, where the research execution process begins with the identification of a *Critical and High Quality Knowledge Base* (CHQKB) for the domain of metacognitive knowledge as to summarizing strategies and instructional techniques for expository text that promote metacognitive development and then proceeds to the translating of the CHQKB into *Appropriate Representations and Communications* (ARCs), namely, *The Monograph* in this study, for post-secondary EFL reading teachers. As pointed out by Perla and Carifio (2011), this research process is nonlinear and highly dynamic, and findings, both anticipated and unanticipated, keep emerging, along with difficulties, frustrations and insights the researcher encountered.

The most important insight obtained in this case study occurred during the process of identifying and reviewing scholarly and nonscholarly literature related to metacognitive knowledge. That is, since metacognition is a fuzzy concept, before delving into the details of what consists of reading teachers' metacognitive knowledge of the above-mentioned instructional task, the researcher realized that a general metacognitive knowledge framework needs to be conceptualized and constructed to guide the translating of the CHQKB into ARCs (i.e., *The Monograph*) as such a framework did not exist nor was it particularly explicit in any of the scholarly and non-scholarly source that were of sufficient quality to be included in the CHQKB. Therefore, the needed *metacognitive knowledge framework* constructed was the first unexpected finding in this study. Within the execution space A from the CHQKB to the ARCs for the Phase I study, research focused first on the conceptualization and construction of a general metacognitive knowledge framework, and then on the elaboration of the framework in terms of the specific metacognitive skills and knowledge EFL Reading teachers needed to teach summarizing strategies with expository text to EFL undergraduates, both of which constituted the main content of *The Monograph* the first order targeted outcome for this study. Constructing and then particularizing this needed framework was the chief unanticipated road block and major problem faced in this study and it required a comprehensive inductive-deductive reasoning and exploratory process to successfully address, which will be discussed next.

Constructing a General Metacognitive Knowledge Framework

The general metacognitive knowledge framework conceptualized and constructed was inductively derived from Flavell's metacognitive knowledge model, and other researchers' categorization of cognitive knowledge.

Flavell's Conceptualization of Metacognitive Knowledge

Flavell (1979) characterized metacognitive knowledge as stored world knowledge that "has to do with people as cognitive creatures and with their diverse cognitive tasks, goals, actions, and experiences" (p. 906) and he conceptualized his general definition into three macro variables—person, task, and strategy variables (as mentioned earlier). Since Flavell's (1979) seminal work the notion of metacognition has been applied to learning across content areas. Using Flavell's model of metacognition Brown (1985) and Baker and Brown (1984) applied the concept to the area of reading comprehension instruction and discussed the relations between metacognition and reading comprehension. Thus, it is more than reasonable to take Flavell's model of metacognitive knowledge as a theoretical base to investigate the metacognitive knowledge of a particular group of reading teachers and on a particular task in reading comprehension instruction.

Since this study was focused on a particular group—Chinese post-secondary EFL reading teachers, their metacognitive knowledge of person variables must involve their knowledge or belief about their own nature as EFL teachers, as well as the nature of their students (i.e., EFL learners) who are learning to read and/or reading to learn in English. The complexity and complications of discussing this aspect of metacognitive knowledge, namely, person variables, is undoubtedly beyond the scope of this study. Therefore, the focus of this study was only on the discussion of task variables and strategy variables of metacognitive knowledge.

Metacognitive knowledge of task variables includes knowledge about the nature of the task as well as the types of processing demands they place upon the individual. What a person knows about task variables is mostly related to the relative difficulty of the tasks (Garner, 1987: p. 17). For this study, task variables were related to the teaching task—summarizing strategies with expository text to be done by EFL undergraduates (a metacognitive skill and task to be done by the EFL undergraduate reader) as well as the target task itself (i.e., successfully reading and understanding the expository text). For example, the reading teacher might (meta-cognitively) know that expository text is usually more difficult to understand than narrative text, which in turn leads to considerations of strategies that might be used by the EFL undergraduate reader (person variable) to read and understand the expository text successfully. Metacognitive knowledge about strategy variables, therefore, would also include ways of conducting teacher training instruction effectively with the EFL *teacher* so that their thinking and reasoning about teaching expository reading to EFL undergraduates would include consideration and selection of effective strategies (i.e., appropriate pedagogical knowledge). This later type of metacognitive knowledge about strategy variables for successfully teaching EFL teachers would be pedagogical knowledge about teaching pedagogical knowledge or metacognitive pedagogical knowledge. Such knowledge would include both cognitive and metacognitive strategies, as well as information about when and where it is appropriate to use those strategies as knowledge to be learned by the EFL teacher and knowledge to be taught by the EFL teacher trainer. For instance, scanning an article before reading it in detail is one important cognitive strategy, while reminding oneself to check one's comprehension of a text after reading and then actually doing this activity is treated as a metacognitive strategy. This latter example can be discussed as a learning acquisition task for the EFL teacher, a learning usage or application task for the EFL teacher, and also as a teaching strategy task for the EFL teacher or the trainer of EFL teachers. Specifying which of these three variants of the general concept or category of metacognitive strategies is actually being focused upon and discussed in a

particular context, application or exegesis. This is a needed and helpful clarification, modification, and change that were required to Flavell's model to make it more practical and useful in the current and other contexts. This same type of clarification and modification was needed for Flavell's person and task macro variables as well.

Even with these clarifications and modifications of Flavell's view of metacognitive knowledge in terms of person, task and strategy variables, it was still difficult to discuss metacognitive knowledge in terms of concrete specifics and specific situations. Therefore, other researchers' analyses of the nature and categories of knowledge since Flavell's (1979) seminal work were considered.

Other Researchers' Conceptualization of Metacognitive Knowledge

Paris, Lipson, and Wixson (1994) described the "what", "how", "when", "where", and "why" of metacognition. The "what", "how", "when", "where", and "why" of knowledge, cognition, metacognition and metacognitive knowledge are significant and the focus of the information-processing paradigm of learning which conceptualizes learning as "the flow of information in and out of a system of mental structures" (Hacker, 1998: p. 5). This description of the nature of knowledge and learning is echoed in the categorization of knowledge structures by cognitive psychologists (e.g., Squire, 1987) when analyzing the nature of human memory where such knowledge and processes reside and their machines form analogs in the areas of artificial intelligence and knowledge engineering. Most theorists in this paradigm assume that "people have records corresponding to four types of knowledge: declarative, procedural, conceptual, and episodic [stored in memory]" (see review by Byrnes, 2001: p. 45).

Declarative knowledge or "knowing *that/what*" is "a compilation of facts," while *procedural knowledge* or "'knowing *how*" is "a compilation of linear action sequence that people perform to attain goals" (Byrnes, 2001: p. 29). Thus, knowing certain procedures of summarizing an article belongs to declarative knowledge, while being actually able to summarize the article is procedural knowledge. One's *conceptual knowledge*, known as "knowing why," is stated as a form of representation that reflects ones' understanding of his/her declarative and procedural knowledge (Byrnes, 2001: p. 45). A person with conceptual knowledge can explain accurately why certain declarative facts are true or false, or why certain procedures work or fail as they do. One's *episodic knowledge* refers to "knowing when and where," which represents "the source of the information" in one's memory: 1) Where a person was when something happened to him/her (e.g., one's first driving test); and 2) when this event took place in one's life (e.g., in the October of 2004). Clearly, knowing a fact (e.g., that the place Ground Zero is related to 9/11) differs from knowing how a person came to know the fact (e.g., hearing it on TV, being informed by a teacher, or reading it in a magazine).

Other cognitive psychologists have proposed different knowledge (and memory) types as well. For example, in the early 1980s psychologist Endel Tulving grouped declarative and conceptual knowledge under the category of semantic memory, which is "associated with language skills (e.g., reading, writing, comprehending)" (Byrnes, 2001: p. 45). However, no matter what terms are used to categorize *knowledge* (or in cognitive psychologists' term, *memory*) or how *knowledge* is categorized, the discussions of its nature or contents always involve the "what," "how", "when," "where," and "why" of the information. In fact, many educational researchers have grouped the "when," "where," and "why" knowledge together to form the category of "*conditional* knowledge" while discussing metacognition since 1980s (see Baker, 1989; Garner, 1987, 1990; Glaser & Chi, 1988; Pressley, Borkowski, & Schneider, 1987; Reynolds, 1992; Schneider & Pressley, 1989). In studies on reading comprehension instruction, these three categories, that is, declarative, procedural, and conditional knowledge, are commonly used to discuss metacognitive knowledge in reading and reading instruction (Reynolds, 1992; Jones, 2007). These views and categories were a great improvement on Flavell's metacognitive knowledge model and a very useful way to supplement Flavell's views as well as easier to work with and use practically.

Thus, for this study, these three categories of knowledge, namely, declarative, procedural, and conditional knowledge became the *second and cross-indexing dimension* of conceptualizing metacognitive knowledge. Moreover, since metacognitive knowledge is considered as second-level knowledge applied to plan, monitor, and evaluate the process of cognitive enterprises, these three knowledge categories used at the metacognitive level are then termed as metacognitive declarative, procedural, and conditional knowledge.

To summarize and codify the above-discussed taxonomy of metacognitive knowledge, a two-dimensional matrix was designed to integrate Flavell's task and strategy variables with the three categories of metacognitive declarative, procedural, and conditional knowledge (**Table 1**).

From **Table 1**, one can see that Flavell's one dimensional view of metacognitive knowledge (i.e., task variables and strategy variables) can be analyzed respectively from the other dimension of metacognitive knowledge, namely, declarative, procedural, and conditional knowledge, and vice versa. According to this inductively derived Metacognitive Knowledge Framework (MKF), any task variables and strategy variables can then be discussed from the six aspects numbered "1" to "6" in **Table 1**. For the teaching task of this study—teaching summarizing strategies with expository text to EFL undergraduates, and from the perspective of post-secondary EFL reading teachers, their metacognitive knowledge could thus be approached in six areas listed in **Table 2**.

According to **Table 2**, to elaborate this MKF in terms of post-secondary EFL reading teachers' summarizing strategies instruction with expository text (the general term "reading teacher" is used hereafter for conciseness), four questions were raised respectively from the dimension of declarative knowledge, procedural knowledge, and conditional knowledge as follows:

Table 1.
A two-dimentional matrix of metacognitive knowledge framework (mkf).

Metacognitive Knowledge Categories	Task Variables	Strategy Variables
Declarative Knowledge	1	2
Procedural Knowledge	3	4
Conditional Knowledge	5	6

Table 2.

A two-dimensional matrix of MKF for post-secondary EFL reading teachers' teaching summarizing strategies with expository text.

Metacognitive Knowledge Categories	Task Variables	Strategy Variables
Declarative Knowledge	1. Knowing what summarizing strategies instruction with expository text consists of	2. Knowing what instructional strategies/approaches of teaching summarizing strategies with expository text they have in their knowledge repertoire, and what these strategies entail
Procedural Knowledge	3. Knowing how to use the above declarative knowledge to conduct their teaching	4. Knowing how to apply those instructional strategies/approaches available to them in their teaching
Conditional Knowledge	5. Knowing why, when and where to use the above declarative and procedural knowledge of summarizing strategies instruction with expository text in their teaching	6. Knowing why, when and where to use the above declarative and procedural knowledge of instructional strategies available in their teaching

- What do reading teachers know about the nature of teaching summarizing strategies with expository text as well as the type of teaching demands that will place upon them?
- What do reading teachers know about the instructional strategies/approaches that they have in their knowledge repertoire to teach summarizing strategies with expository text, and what these strategies/approaches entail?
- What do reading teachers know about how to apply to their teaching their declarative knowledge (i.e., the knowledge of the nature, teaching demands and instructional strategies/approaches) of summarizing strategies instruction with expository text? And,
- What do reading teachers know about why, when, and where the preceding declarative and procedural knowledge of summarizing instruction with expository text as well as available instructional strategies can work effectively in their teaching?

Clearly, the process of answering these questions is the process of elaborating the MKF generated above for a particular teaching context and particular set of teaching learning tasks and situations. The process of developing and elaborating answers to the four key questions stated above is briefly discussed in the next section.

Elaborating the Constructed Metacognitive Knowledge Framework (MKF)

To explore answers to the above questions, a distinction between "knowledge *for* teachers" and "knowledge *of* teachers" needs to be made first. The two terms were put forward by Fenstermacher (1994) with "knowledge *for* teachers" referring to *formal knowledge* that is primarily known and produced by researchers for teachers rather than *practical knowledge*, namely, "knowledge *of* teachers" that is principally known and generated by teachers themselves as a result of their experience as teachers and their reflections on those experiences. To know "knowledge *of* teachers", surveys and on-site observations should be conducted on large samples of targeted group. This approach was not adopted in this study. The focus of elaborating the MKF in this study was on the metacognitive knowledge *for* reading teachers. Specifically, the sources of this elaboration were based on the syntheses and analyses of various researchers' research and studies on areas related to the current topic, i.e., reading teachers' metacognitive knowledge of summarizing strategies instruction with expository text to EFL undergraduates. The relevant areas examined to answer these questions included metacognitive knowledge, text comprehension models, comprehension strategies instruction, summariz-

ing instruction, expository text comprehension, and so on. The closely connected scholarly and nonscholarly literature for the above areas was then established, screened, weeded and refined into a CHQKB for the metacognitive knowledge domain identified in this study. The following section, therefore, is about how the sources of the elaboration (i.e., the CHQKB) were identified, what the general features are of the completed monograph which is the ARCs developed for this study according to Carifio-Perla Model (2011), and how the content outline of *The Monograph* was finalized.

The Identification of the Critical and High Quality Knowledge Base

The previous four questions served as focused research questions, guiding the pursuit of relevant material to form the CHQKB of metacognitive knowledge for post-secondary EFL reading teachers in terms of summarizing strategies instruction with expository text.

Since little literature directly related to this focused topic came up from various database searches (e.g., ProQuest, EBSCOhost, SAGE, JSTOR), conceptual parameters were reset to locate the relevant research reports, journal articles, scholarly books, presented papers, dissertations and so on to ensure a systematic search of the universe of possible relevant documents. The conceptual parameters consisted of such research areas as teachers' metacognitive knowledge development, reading strategies instruction, summarization, and expository text.

These four conceptual parameters are represented with numbers from 1 to 4 respectively in **Figure 2**. The letter *A* in the center of the figure indicates the combined answers to the previous four focused questions, which are actually a synthesized CHQKB of metacognitive knowledge consistent with the metacognitive knowledge framework derived for this study. Relevant sources were then located with key terms and the different combinations of the key terms, in the previously-mentioned four areas. Some key terms used to search relevant research evidence are listed in **Table 3** in terms of the above four research areas.

Moreover, to ensure the "content validity" of both the metacognitive knowledge base, upon which the majority of *The Monograph* was based, and *The Monograph* itself, selection criteria for including, reviewing, evaluating, and closely analyzing relevant literature were also specified. Since there was no easy way to determine the current validity of the documents finally selected, the views and opinions of experts, together with their citation frequencies, in the area of metacognition, cognition, learning theory and reading comprehension instruc-

Table 3.
Key terms for database search.

Research Area	1	2	3	4
	Teachers' metacognitive knowledge development	Reading strategies instruction	Summarization	Expository text instruction
Key Terms	Teachers' knowledge base Metacognitive knowledge; reading teachers' knowledge base; reading teachers' metacognition; reading teachers' professional development, etc.	Reading models reading instruction; teaching reading strategies; summarizing strategies instruction; post-secondary EFL/ESL education/instruction, etc.	Summarizing strategies; summarizing procedures; teaching summarization; summarization in EFL/ESL education, etc.	The nature of expository text; expository text structure; teaching expository text; expository text comprehension; Summarizing expository text, etc.
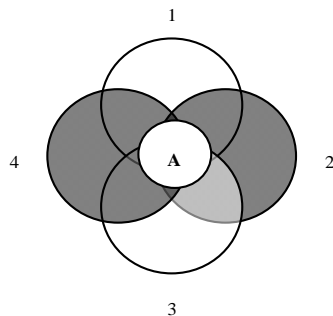
Figure 2.
Conceptual parameters for source identification to elaborate the Metacognitive Knowledge Framework (MKF). 1 = teachers' metacognitive knowledge development; 2 = reading strategies instruction; 3 = summarization; 4 = expository text; A = synthesized base of metacognitive knowledge.

tion were also included in the CHQKB and its critical analyses. Further, to ensure that the views, opinions, and models considered and included in *The Monograph* reflected the specific purpose of this study, triangulation between domains and expert opinions was done to weigh and select sources.

Because it was quite tentative and novel to synthesize a metacognitive knowledge base from several areas and because the concept "metacognition" itself has been a "fuzzy" one, the syntheses were thus largely based on the researcher's own understanding. This fact is also why panels of expert reviewers were convened during the second phase of the study to review and evaluate *The Monograph* independently, and to cross-validate (or not validate) the various decisions and selections made in the development of the work. This reviewing process provided some independent empirical information about the content of *The Monograph* so as to validate its content validity. This kind of research design, initiated by Carifio (1975, 1977) has been done successively and successfully by Perla (2006), Erikson (2006), Kwong (2008) and several other researchers before them.

Using the key search terms and selection criteria described above, research sources/evidences resulting from this identification process was put together, organized, analyzed and synthesized to be the content of *The Monograph*. For this study, the priority of choosing research evidence was given to the area of EFL education. If there was not any, then sources in ESL education would be considered, or even those from the field of teaching English as a native language. This decision was made

guided by the belief that some educational principles would be universal no matter what instructional setting there is. Moreover, *The Monograph* itself would go through a reviewing process for validation upon its completion which would quality control all guiding beliefs and decisions one way or the other. Thus, it was reasonable to consider studies against a backdrop of ESL or mainstream English teaching as part of the research evidence for the synthesis of a metacognitive knowledge base presented and elucidated in *The Monograph* as there was an independent expert panel check and review on doing so.

The Finalization of the Content of the Monograph

As depicted in Carifio-Perla Model (2011), the finalization of the content outline and the content of *The Monograph* (i.e., the ARCs for this study) was an iterative, spiral and dynamic process because new ideas kept evolving with each addition of different research evidences and each revision of previous analyses and syntheses. Nevertheless, the primary audience of *The Monograph* was always kept in mind. They are in-service post-secondary EFL reading teachers, whose students speak English as a foreign language.

The Monograph in its final pre-expert-panel-review form was eight chapters with the first seven chapters laying out a theoretical background for post-secondary EFL reading teachers about what metacognitive knowledge of summarizing strategies instruction with expository text entails, and the last chapter providing a scenario of applying the metacognitive knowledge to the design of summarizing strategies instruction.

The layout of the content of *The Monograph* was basically designed as the following:
- Each chapter in *The Monograph* started with the key objectives of the chapter followed by the elaboration of a list of key terms, principles, facts and opinions.
- Tables, charts, figures and other graphics were used to support the explanations in all chapters.
- When appropriate, a list of references was provided beyond those cited in each chapter or for *The Monograph* in general. These references included further reading, useful websites, available resources and available instructional activities.

The general reading level of the text was appropriate for post-secondary EFL reading teachers since it was written by the researcher who was once a post-secondary EFL teacher. The appropriateness of the reading level and the quality of the writing of the text in *The Monograph* was also confirmed by the independent review panel.

The finalized content for the version of *The Monograph* reviewed in phase II of the study had eight chapters. Based on an overview of past research on teachers' professional knowledge

and metacognitive knowledge, Chapter 1 outlined and summarized the focus of the monograph. Chapter 2 presented the general Metacognitive Knowledge Framework (MKF) for the study after a thorough analysis of other researchers' conceptualization of "metacognition" and "metacognitive knowledge". In Chapter 3, to support the constituents of MKF, a reading model was presented and elaborated to help reading teachers better understand the nature and process of summarizing complex text and expository text comprehension at the post-secondary level. To further elaborate the theoretical MKF for reading teachers on teaching summarizing strategies in ESL/EFL instructional contexts, an instructional model focused on maximizing comprehension along with a range of comprehension improving strategies is synthesized in Chapter 4 to meet the particular needs of ESL/EFL learners, who are greatly different from mainstream students in the United States. Chapter 5 explores the constructs and teaching demands of summarizing strategies instruction with expository text, which comprises the metacognitive declarative knowledge of task variables in MKF. The specifics and details of teaching summarizing strategies with expository text (Category 2 in the model) is addressed and illustrated in Chapter 6, with a strong focus on the sub-teaching tasks of summarizing strategies instruction. This focus on specifics and details is continued in Chapter 7 which concentrates on the selection of cognitive and metacognitive strategies with some accompanying conditional knowledge involved in teaching summarizing strategies.

To apply the previously discussed metacognitive knowledge, Chapter 8 provides scenarios to show how a reading teacher's metacognitive knowledge can be translated into designing a lesson plan for teaching certain summarizing strategies with expository text to ESL/EFL undergraduates. These scenarios only serve as a platform to inspire reading teachers to be aware of their own metacognitive knowledge and to be creative in using it for any lesson plan design of their own. The scenarios and lesson plans provided concrete models for ESL/EFL teachers to learn from and for their work to be compared to by their teachers.

Constant revision and polishing of the above content outline occurred as expected as soon as the actual writing process began and some feedbacks from other experts were obtained. The same kind of constant revision and changing of the original content outline also occurred throughout Phase I of other document and monograph creation case studies using this research and document creation model by such researchers as Erikson (2006), Flores (2005), Kwong (2008), Pellitier (2004), and Perla (2006). Therefore, with a much-revised version of the content outline and the content itself during Phase I, the finalized version of *The Monograph* was then released to the reviewing process during Phase II of this case study.

In Phase II, *The Monograph*, together with a modified formal review protocol (Carifio, 2003), was sent chapter by chapter to two formal reviewer panels (i.e., one panel of seven reading teachers and another panel of seven teacher educators) in China for external third party reviewing. Reviewers critiqued and commented on the appropriateness of the constructed metacognitive knowledge framework (MKF) and the effectiveness of its application in the development of each chapter as well as the whole monograph. *The Monograph* was specifically reviewed in terms of such 7 criteria as 1) Accuracy, Saliency and Relevance of Content, 2) Thoroughness, 3) Quality of Supporting Theory, Research, and Scholarship, 4) Presence of Multiple and Alternative Views, 5) Tone, 6) Clarity of Writing Relative to Audiences, and 7) Specificity and Concreteness of Key Points and Recommendations.

Results from Phase II revealed that all reviewers judged that the MFK was appropriately constructed and effectively represented and communicated in *The Monograph*. This judgment supported the high quality and consistency of *The Monograph*. That is to say, the ARCs developed and reflected in *The Monograph* were successfully constructed and written to a high standard of quality from the perspective of this group of reviewers, although several revisions were made to finalize the finalized monograph to improve it. The specific and detailed findings from Phase II of this case study will be presented and discussed in full in another article. However, a few key findings of Phase II will be presented here to illustrate the importance of this phase and the consensus expert findings generated by it.

The first key consensus finding of the expert panel was that only through a thorough understanding of metacognitive knowledge and the specific metacognitive knowledge needed in a given situation, can a reading teacher effectively design a lesson plan to teach summarizing strategies with expository text, starting from analyzing the teaching task to specifying each sub-teaching task and especially so for ESL/EFL undergraduate students. The consensus of the expert panel was that the model and knowledge presented in the *Monograph* should be part of the training for preparing in-service ESL/EFL teachers.

The second key consensus finding of the expert panel was that teachers should be able to decompose instructional tasks into major and minor sub-teaching tasks which included the metacognitive knowledges and strategies needed to effectively teach the task and subtasks, and that further Monographs like the one produced for teaching expository text comprehension and summarizing skills were needed and should be developed.

The third consensus finding of the expert panel was that the Monograph produced by the research model used in this study was an exemplary model for producing such monographs, and the monograph produced was an excellent training manual for both the production process and the knowledge produced on effective strategies for enhancing the expository text comprehension and summarizing skills of ESL/EFL undergraduate students.

The fourth key consensus finding of the expert panel was that the most complete and coherent view of summarizing text was the ability to construct from one's reading and understanding of the gist of the text the appropriate summarizing view that conveyed the important information for a particular reading purpose to the different degrees ranging from disclosing the author's intention to fulfilling the reader's own goals and interests, or goals assigned to the reader by external sources or demands.

The above definition of summarizing text is supported by Kintsch's (1998) Construction-Integration (CI) model, a model of text comprehension that consists of a two-phase process of constructing and integrating the meaning of a text. Kintsch's model also proposes three types of mental representations that occur during comprehension: 1) surface form representations (decoding and encoding the exact text wording and meanings), 2) textbase representations (actively constructing an integrated network of propositions that characterize the text and its meanings), and 3) developing a situation model for the text (actively constructing and elaborating the situation described by the text).

The textbase in Kintsch's model, it should be noted, also has two parts and is comprised of the (a) the microstructure of the text (the sentence-by-sentence information that is processed by the reader or the "local structure" of the text) and the macrostructure of the text, which refers to a hierarchically-ordered set of propositions, derived by the reader from the microstructure; namely, the "global structure" of the text.

In Kintsch's view and model, the *macrostructures* of the text are reflected in summarizing words as the *gist* of the text. Thus, a summary would be an ideal text expression of macrostructures, which, according to Kintsch, are generated from the microstructures via three macro-rules.

These three macro-rules are: 1) the *deletion* rule (omission of unimportant and irrelevant information); 2) the *generalization* rule (substitution of details into higher level categories); and 3) the *construction* rule (integration of details into topic sentences). A detailed explication of these three macro-rules, it should be noted, is given in Van Dijk, 1980, and Van Dijk and Kintsch, 1983.

With a detailed understanding of Kintsch's CI model, the reading teacher will come to know and understand that to use the strategy of summarizing, students should first determine the important information in the text, and then condense it and put it in their own words. Some basic rules for summarizing text include: 1) delete trivial and irrelevant information; 2) delete redundant information; 3) provide a superordinate term for members of a category; 4) find and use generalizations the authors have made; and 5) create your own generalizations when the author has not provided them. Using this operational definition of summarizing and its associated heuristic rules set, the reading teacher can then decompose the overall teaching task into three major sub-teaching tasks: 1) teaching how to specify the type of summary to be composed; 2) teaching how to identify important information in a text; and 3) teaching how to generate the gist of a text via macro-rules and their associated heuristic sub-rules.

Each major sub-teaching task, moreover, can further be broken down into several minor sub-teaching tasks depending on the reading teachers' metacognitive knowledge of person variables in a particular situation (i.e., their EFL undergraduates and their individual personal profiles), which is not the focus of *The Monograph*. The focus of *The Monograph* is on teaching the student (and the student's teacher) that the first metacognitive task is making a decision about whether the task at hand is one of generating an author-based or reader-based summary of the text, as this decision drives everything else. This decision influences the identification and inclusion of what important information is actually germane and key in the summary of the text for the specific purpose at hand.

The reading teacher should help students understand that the differences between author-based summaries, which cover the author's intentions mostly, and reader-based summaries, which indicate the reader's interests mostly, is key in a given context, and both determine and drive cognitive processing and behaviors, even though the difference between the two types of summaries is sometimes somewhat fuzzy and overlapping.

This particular metacognitive processing decision is not a decision the student should be passively making unconsciously or by default, with the student later claiming that she or he "misunderstood" the task. The reading teacher needs to teach the student how to assess and analyze the summarizing task at hand, and then how to decide and consciously control the focus of a summary to meet various academic purposes.

This kind and type of conscious control could be characterized as a very elementary and fairly convergent form of *creative control*, but the learning of creative control, and conscious creative control, must begin someplace, and be present in as many places in the curriculum and activities students experience as possible, as from many small and elementary "practice" acorns, far more complex behaviors and more creative decision-making skills are grown and invoked over time.

As part of reading teachers' metacognitive knowledge of summarization instruction, what types of summaries are targeted in their instruction should not only be clear for them, but also be explicitly stated in their classrooms because different kinds of summaries may demand different ways of teaching. This type of explicitness, moreover, will also help to both assess and ensure that the types of summaries that ESL/EFL undergraduates write, learn to write and write consciously and purposefully using the metacognitive skills they have been taught in their programs will be both appropriate and adequate for them to 1) learn better from their textbooks, 2) write better papers in their courses, and 3) write an acceptable thesis for the partial fulfillment of a degree. Therefore, from all that has been said and elucidated above, it would seem fairly reasonable to say at this point that helping teachers to pay better attention to students' metacognitive knowledge and their own metacognitive teaching knowledge should help to bring about more creative and effective instruction and education, and that monographs such as the one developed and described in this study is one mechanism and strategy for achieving both of these goals in a relatively low cost but quality controlled way.

Conclusion

This study was an exploratory case study on an individual EFL teacher's growth in different kinds of meta-cognitive knowledge that occurred during the model-driven and guided process of completing and validating a monograph on the knowledge and the meta-cognitive teaching knowledge needed by EFL Reading teachers to teach summarizing strategies with expository text to EFL undergraduates. Being an exploratory inquiry and seminal investigation, the study itself has several methodological limitations which need to be considered when drawing conclusion about and implications from it.

First, in view of the highly fuzzy nature and differing views of meta-cognition outlined briefly in this article but in more depth and detail in *The Monograph*, the conceptualization and operationalization processes of selecting, characterizing and particularizing EFL reading teachers' needed meta-cognitive and pedagogical knowledge may be somewhat tentative, as all such first attempts are, and in need of more empirical confirmation beyond the views of the two review and validation panels used in this study, and such confirmatory studies should indeed be done. Further, in terms of certain kinds of generalizations one might like to make, this study is limited by one researcher's attempt to conceptualize the role of metacognitive knowledge and to apply it to a specific teaching area. A different researcher might come to different conclusions and suggestions even analyzing the same literature and high quality CHKB and using the same guiding model and the same methodology. Given the fairly homogeneous and consensus views of the two review panels used, however, the probability that a markedly different view would be observed is quite low, although such a study

should be done to confirm this point and further validate the view that has emerged from this study. Further, as the boundaries between cognitive and metacognitive knowledge are generally not clear-cut, and usually depend on the purpose of their application in practical situations, it should not surprise professionals and teacher-educators in the EFL as well as other areas that the particulars and the details of specific task or sub-domain foci will vary to some degree when the model outlined in this article is applied and instantiated. This fact adds to the complexity of developing and validating meta-cognitive knowledge descriptions and characterizations in specific EFL areas and subareas for both EFL students and EFL teachers and for developing monographs for post-secondary EFL reading teachers on the specific knowledge and meta-cognitive teaching knowledge they need for teaching particular kinds of reading skills for specific kinds of texts such as messages on a cell phone or a web page never mind the wide variety of traditional text forms that the student need to learn how to read. This problem, however, is similar to the problem of dialects in language and the "normalization" processes one uses to understand the speech of others. What will emerge from various investigations such as this one and the ones outlined above will be "normalized" knowledge and meta-cognitive teaching knowledge in these areas for EFL students and teachers over time that will be broadly applicable and highly valuable, if researchers and researcher-practitioners do the various work that is needed and have the patience to allow such "normalized" knowledge and meta-cognitive teaching knowledge to emerge.

The study was also limited by resources available and the ability of researchers who do work and case studies such as this one to have access to actual educational situations to conduct empirical research (Phase III of the model outlined in this article) in any EFL instructional contexts. The EFL area needs to speak up to support work such as this case study and to open up the access that is needed to conduct Phase III empirical research studies so that effectives data may be generated to incorporate into the model and revise it if necessary.

In spite of all of its limitations, this case study of one teacher's exploration of the meta-cognitive teaching knowledge needed by EFL reading teachers to teach summarizing strategies with expository text to EFL undergraduates and the process used to validate the answers found via other fellow teachers has shown the possibility of nurturing teachers' and educators' professional growth via such type of educational communication and cognitive apprenticeship and the intellectual and spiritual support the researcher received from other educational experts and the external independent reviewers during this exploratory study. The model outlined here, therefore, is not only a model of how to develop high quality instructional and scholarly materials, but a model of how to train others to do so and a model that may be used for pre-service and in-service teacher training and professional development as well in some more simplified form. Furthermore, the general research design and panel methodology of the study, together with other studies (See Erikson, 2006; Flores, 2005; Kwong, 2008; Perla, 2006) was most certainly a successful adaptation and implementation of a formalized model of academic materials development initiated by Carifio (1975, 1977) and later elaborated by Perla (2006) and further again in Perla and Carifio (2011).

Further research is needed to acquire more evidence and feedback from other educators, education researchers and researcher-practitioners to validate further the model outlined in this study in terms of the academic and professional development growth that obtains in those who use this model as well as the model's ability to go from *theory* to *product* for the enrichment of EFL reading teachers and their students.

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