

## The Effect of Explicit Instruction on Strategic Reading in a Literacy Methods Course

Yuko Iwai

*University of Wisconsin-La Crosse*

This study examined the impact of explicit instruction on metacognitive reading strategies among 18 K-8 teacher candidates in a literacy methods course. They received weekly explicit intervention about these strategies over one semester. Collected data included pre- and post-scores of the Metacognitive Awareness of Reading Strategies Inventory (MARSI) before and after intervention, quickwriting notes, literacy lesson plans, and reflection papers. The results showed that the teacher candidates increased their awareness of metacognitive reading strategies after the intervention. They also shared their positive attitudes toward learning about these strategies and plan to implement them in their future classrooms.

Literacy is a critical aspect of students' academic learning. Literacy skills and knowledge are essential in order to for students understand what they learn in school regardless of their subjects and/or grade levels. The National Reading Panel (2000) claims that reading comprehension is one of the most critical elements in building students' literacy skills. Students must have literacy skills for effective learning; however, many students struggle with reading, which hinders their academic success. According to the National Assessment of Educational Progress (NAEP) (2012a), approximately one-third of fourth graders scored below the reading proficiency for their grade level in 2011. Approximately one-fourth of eighth graders did not meet their grade reading proficiency level in 2011 (NAEP, 2012b). These reports demonstrate the need to develop students' literacy skills.

In order to support all students, including struggling students, teachers must implement effective strategies to teach their students well. One effective technique is the use of metacognitive reading strategies. Metacognitive strategies are "routines and procedures that allow individuals to monitor and assess their ongoing performance in accomplishing a cognitive task" (Dole, Nokes, & Drits, 2009, p. 349). Research shows the effectiveness of using these strategies to improve students' reading comprehension (Baker & Brown, 1984). With this evidence, it becomes clear that prospective teachers must have sufficient knowledge about metacognitive strategies and abilities to implement them in their future classrooms because they will influence their future students' reading comprehension and learning in schools. While metacognitive reading in higher education is an ongoing topic of research, there is not much research concerning how teacher candidates learn a variety of metacognitive reading strategies through instruction in the teacher education program. The research is limited regarding how explicit instruction about metacognitive reading strategies impacts their awareness and attitudes toward metacognitive reading strategies.

Therefore, this study aims to explore teacher candidates' learning experiences using metacognitive reading strategies through explicit instruction. The overarching research question is: What is the impact of explicit reading instruction on teacher candidates' views on metacognitive reading strategies? The researcher also considered the following sub-questions: Are there any differences between pre- and post-results of the Metacognitive Awareness of Reading Strategies Inventory (MARSI) (Mokhtari & Reichard, 2002) in the overall score and scores in its three sub-categories (Global Reading Strategies, GLOB; Problem Solving Strategies, PROB; and Support Reading Strategies, SUP)?; What are the teacher candidates' perceptions of metacognitive reading strategies?

### Literature Review

#### Revisiting Concepts of Metacognitive Reading

Metacognition is thinking about thinking (Anderson, 2002, 2005; Hacker, 1998). It evidences a person's ability to reflect on what is known and is not merely the process of recalling or of describing events or activities (Anderson, 2008). According to Baker and Brown (1984), metacognition is knowledge of and monitoring of one's thinking and learning processes. Metacognition plays an essential role in developing learners' ability to monitor their learning process and regulate their learning (Azevedo & Whitterspoon, 2009).

Metacognition involves declarative knowledge, procedural knowledge, and conditional knowledge (Jacobs & Paris, 1987; Paris, Lipson, & Wixson, 1983). Declarative knowledge is the knowledge people have about themselves and about learning strategies which influence the cognitive process (McCormick, 2003). Declarative knowledge in reading means simply knowing strategies, such as skimming, summarizing, and inferring (Carrell, Gajdusek, & Wise, 1998). Procedural knowledge is awareness of one's thought

processes (Jacobs & Paris, 1987), and it refers to knowing or reflecting on how to actually perform the reading strategies (Winograd & Hare, 1988). Conditional knowledge is learners' ability to select and employ specific reading strategies appropriately in various contexts and to evaluate the effectiveness of the strategies (Carrell, Gajdusek, & Wise, 1998; Jacobs & Paris, 1987; Winograd & Hare, 1988). In order to have conditional knowledge, learners need to know when and where to apply declarative and procedural knowledge (Schreiber, 2005).

### **Metacognitive Reading in Schools**

The National Reading Panel (NRP) views metacognition as an important element of reading (2000). It also points out that students can benefit from instruction using metacognitive reading strategies, thereby improving their reading comprehension (NRP, 2000). Researchers have shown that advanced readers use more metacognitive strategies than less advanced readers (Baker & Brown, 1984; Block & Israel, 2004; Israel, 2008).

Vaughn et al. (2011) looked at the effectiveness of strategic and metacognitive reading strategies among seventh and eighth graders in three school districts. Classes were divided into 27 comparison and 34 treatment classes. Students in the treatment groups received collaborative reading comprehension instruction over eighteen weeks. After the treatment, the researchers found that students who received specific reading instruction demonstrated higher reading comprehension on the Gates-MacGinitie Reading Test than students in the comparison group. This finding concurs with other researchers who show the positive relationship between teaching metacognitive reading strategies and students' reading proficiency (Al-Alwan, 2011; Anderson, 2008; Boulware-Gooden, Carreker, Thornhill, & Joshi, 2007; Cummins, Stewart, & Block, 2005; Edmonds et al., 2009; Lubliner & Smetana, 2005; Pressley, 2002; Pressley & Gaskins, 2006). Van Keer and Vanderlinde (2010) found that when third graders received cross-age peer tutoring from sixth graders who received explicit instruction on metacognitive reading strategies (e.g., activating background knowledge, predicting, and monitoring) in a treatment group, both groups scored higher on reading strategy use than students in the traditional group.

### **Metacognitive Reading Strategies at the Post-Secondary Level**

Research on metacognitive reading strategies at the post-secondary level indicates the importance of using these strategies (Alsheikh & Mokhtari, 2011; Lesley,

Watson, & Elliot, 2007). Researchers looked at college students' awareness level and use of metacognitive strategies. Othman (2010) reported that students in a teacher education program in Malaysia were aware of metacognitive reading in three areas: self-awareness (e.g., developing questions before reading), text awareness (e.g., recognizing the connection between text complexity and comprehension), and task awareness (e.g., setting goals for reading) and that they used these strategies while reading academic texts. Isaacson and Fujita (2006) reported that among 84 undergraduate students, academically successful students demonstrated metacognitive awareness and strategies more than less successful students. This study implied that more metacognitive awareness and use of the strategies lead to academic achievement.

In addition, five college students, who learned metacognitive reading strategies in reading courses over two semesters, improved their self-regulation skills and reading comprehension at the end of the study (Nash-Ditzel, 2010). The results of this study align with the findings in the study by Cubukcu (2008a), which examined the impact of systematic instruction of metacognitive reading strategies with 130 teacher candidates in the English department. After a five-week instruction, participants in the experimental group improved their vocabulary and reading comprehension skills compared to those in the control group. Metacognitive reading strategies play an important role for college students.

## **Method**

### **Participants**

Eighteen K-8 teacher candidates (all females and white) who were enrolled in a literacy methods course participated in this study. All were majors in the elementary/middle school teacher education program. The study took place at a mid-size university in the Midwest in the United States. The participants are in the second stage of the teacher education program (stage 1 = pre-block, stage 2 = field experience 1, stage 3 = field experience 2, and stage 4 = student teaching). They previously took a foundations of literacy course and have some background knowledge about literacy.

### **Instruments**

**Metacognitive Awareness of Reading Strategies Inventory (MARSİ).** MARSİ was developed by Mokhtari and Reichard (2002). It measures students' metacognitive reading awareness and use of reading strategies while reading academic materials such as textbooks. The MARSİ uses a five-point Likert type scale, ranging from 1 ("I never or almost never do

this.”) to 5 (“I always or almost always do this.”). The higher the score was, the more a student was aware of, and most likely to use, a particular reading strategy.

The MARSII has 30 items with three sub-categories: (a) Global Reading Strategies (GLOB), (b) Problem Solving Strategies (PROB), and (c) Support Reading Strategies (SUP). There are 13, 8 and 9 items for GLOB, PROB, and SUP, respectively (see Table 1). Global Reading Strategies are strategies “aimed at setting the stage for the reading act” (Mokhtari, Sheorey, & Reichard, 2008, p. 47). Examples include setting purposes before reading, previewing the text before reading, skimming the text, and making decisions about which parts to read closely and which to ignore. Problem Solving Strategies are strategies readers apply when text becomes difficult. Such strategies are adjusting reading speed, using context clues, rereading the text for confirming understanding, or guessing unknown words or phrases. Support Reading Strategies are strategies which readers can apply to help their comprehension with support tools. Using reference materials such as dictionaries, discussing with others for clarifying comprehension, and restating information in one’s own words for better understanding are examples of Support Reading Strategies. The participants completed the MARSII at the beginning and end of the semester. The authors of the MARSII report its reliability as .89, using Cronbach’s alpha. This study yielded Cronbach’s alpha of .86.

**Quickwriting notes.** The researcher asked the participants to reflect on their learning about metacognitive reading strategies four times over the semester. They wrote their reactions, thoughts, and/or questions about their learning experiences. For example, after explicit instruction about the think-aloud strategy, students did quickwriting, using the prompts, “What are your thoughts about the strategy?” and “How do you feel about using metacognitive reading strategies?”

**Literacy lesson plans.** During the semester in which the students took a literacy methods course and participated in this study, they had a three-week intensive field experience in elementary schools. As part of the field experience, the teacher candidates developed literacy lesson plans and taught them in their field classrooms. The number of lesson plans and lesson topics during the field experience varied for each teacher candidate due to their placements and their mentor teachers, but they all taught at least one reading comprehension lesson.

**Reflection papers.** After teaching their literacy lessons to children in their field classrooms, the participants wrote reflection papers about their literacy teaching experiences. They analyzed their lessons from the teacher candidates’ perspective. They included their

critical reflections on what metacognitive strategies they used in their lessons and how they believed the lessons went. They also wrote reflections from the children’s perspective. For example, they reflected on how the children responded to their lessons, particularly the children’s engagement in metacognitive reading strategies, as well as how the lesson objectives were met based on the children’s performance.

### Data Collection and Analysis

The researcher collected the pre- and post-Metacognitive Awareness of Reading Strategies Inventory (MARSII) at the beginning and end of the semester. Between pre- and post-MARSII, the researcher provided the students with explicit instruction about metacognitive reading strategies for approximately 20 minutes every week over the semester. For example, they learned about a think-aloud strategy. They read an expository passage and paused at certain points and shared their thoughts orally with their partners.

They also learned about an anticipation guide strategy. This strategy required them to activate their background knowledge before reading and to indicate their responses to questions about the passage before reading. After they read a story, they revisited their responses and modified them based on information gained from reading. They confirmed their answers and/or discussed why they modified their responses. Another strategy introduced during the explicit instruction was an open-mind portrait strategy. After reading a story, the students drew pictures about a main character of the story, wrote down questions, and key information, and concepts about the main character, and shared them with the class. In addition to the MARSII, the researcher collected data, using quickwriting notes after explicit instruction, literacy lesson plans the participants developed and taught to children at their field experience sites, and reflection papers about their teaching experiences.

Using pre- and post-MARSII scores, the researcher used a paired t-test in order to examine if there were any differences among these scores for overall and three sub-categories of Global Reading Strategies (GLOB), Problem Solving Strategies (PROB), and Support Reading Strategies (SUP). For quickwriting notes, lesson plans, and reflection papers, the researcher first organized the collected data. After preparation for the data analysis was complete, she explored the data to get a general sense of it. While exploring the data, she took notes about some key words, comments, and/or ideas that came to her mind. Next, she coded the data by segmenting and labeling and then highlighted key information or some trends about the participants’ metacognitive awareness and use of metacognitive

Table 1:  
*Three Sub-categories of the Metacognitive Awareness of Reading Strategies Inventory (MARS)*

Sub-category	Description
GLOB	Setting a purpose (item 1) Using background knowledge to help comprehension (item 3) Previewing the text before reading (item 4) Thinking about whether the text content fits purpose (item 7) Reviewing the text characteristics such as length (item 10) Thinking about what to read closely and what to ignore (item 14) Using text features such as tables and figures (item 17) Using context clues (item 19) Using typographical features such as italics (item 22) Critically analyzing and evaluating the text information (item 23) Monitoring one's comprehension (item 25) Predicting text meaning (item 26) Thinking back to see if guesses are right or wrong (item 29)
PROB	Read slowly to understand the text (item 8) Trying to stay focused when one loses concentration (item 11) Adjusting reading speed (item 13) Reading carefully when text becomes difficult (item 16) Pausing to check one's understanding (item 18) Visualizing information (item 21) Rereading for better understanding when text becomes difficult (item 27) Guessing meaning of unfamiliar words (item 30)
SUP	Taking notes while reading (item 2) Reading aloud when text becomes difficult (item 5) Summarizing information (item 6) Discussing information with others to check understanding (item 9) Underlining or circling information in the text (item 12) Using reference materials such as a dictionary (item 15) Paraphrasing information for better understanding (item 20) Going back and forth in the text (item 24) Asking oneself questions (item 28)

*Note.* GLOB = Global Reading Strategies; PROB = Problem Solving Strategies; SUP = Support Reading Strategies.

reading strategies. She then reduced the number of codes by categorizing similar codes into one code that embraced them.

### Results

A paired t-test revealed that there was a statistically significant increase in post-MARS average score over the pre-MARS average score overall ( $p = .001$ ) (See Table 2). The pre-MARS average was 3.24, and the post-MARS average was 3.56. Regarding three sub-categories of the MARS, the researcher found that there was a statistically significant difference between pre- and post-MARS in the Global Reading Strategies (GLOB) category ( $p = .007$ ). A pre-MARS average score for GLOB was 3.07, and it increased to 3.41 at the end of the semester.

While the results were not statistically significant ( $p = .091$ ), there was still an increase in the average post-score over the average pre-score for the Problem Solving Strategies (PROB). The pre-average score for PROB was 3.68, and the post-average score for PROB was 3.86. For the Support Reading Strategies (SUP) category, there was a statistically significant difference between pre- and post-average scores ( $p < .001$ ). The pre-average score was 2.79, and it increased to 3.13.

Regarding qualitative data, three themes emerged. First, teacher candidates themselves enjoyed learning metacognitive reading strategies. For example, they wrote:

- “I enjoy making comments as I read...I feel I gain a better understanding when I talk myself through it.”

Table 2  
*Pre- and Post-Scores of the Metacognitive Awareness of Reading Strategies Inventory (MARS)*

	Pre-MARS	Post-MARS
Overall	3.24	3.56
GLOB	3.07	3.41
PROB	3.68	3.86
SUP	2.79	3.13

*Note.* GLOB= Global Reading Strategies; PROB= Problem Solving Strategies; SUP= Support Reading Strategies.

- “I enjoyed the think-aloud strategy because it really helped me comprehend the text...Thinking aloud myself was an aid in working out my questions and thoughts.”
- “This metacognitive strategy helped me comprehend what I was reading.”

Second, teacher candidates viewed metacognitive reading strategies as effective and helpful strategies for children. They commented:

- “I think a read-aloud strategy would be a very useful teaching strategy.”
- “A metacognitive reading strategy is a good strategy.”
- “Teaching before, during, and after reading will help students be more effective readers.”
- “I think these strategies are very beneficial for students because then they get into a habit when they read on their own.”
- “I think that metacognitive strategies are important in the learning process. When such strategies are used, the reader will gain a much better understanding of the text. The reader will not just skim over the written material but will have to make meaning from it.”
- “I think many of these strategies could be very helpful for children...It is very important to constantly check for understanding.”

Teacher candidates implemented metacognitive reading strategies, such as activating background knowledge, predicting, setting purposes, questioning during reading, paying attention to main ideas and details, and visualizing, in their lessons at their field sites.

The last theme was that teacher candidates planned to implement metacognitive reading strategies in their future teaching. They wrote the following:

- “I found that learning about metacognitive teaching strategies was very helpful. I will try to implement them into my classroom

someday. I will explain metacognitive strategies to my students and then I will use a wide variety of strategies or activities to incorporate my students’ metacognitive reading processes.”

- “I found them [metacognitive reading strategies] to be useful for my future classroom...I will use some of them for sure in my future classroom.”
- “I will begin teaching these [metacognitive reading strategies] by informing the students about how important it is to establish a purpose for reading the text...I will model these strategies so that they become automatic to my students.”
- “I will use some of the strategies in the future!”
- “I think they [metacognitive reading strategies] can be manipulated into any grade level.”

### Discussion

In this study, the researcher explored the impact of explicit reading instruction on teacher candidates’ views on metacognitive reading strategies. The results of this study showed that teacher candidates who received explicit instruction of metacognitive reading strategies over the semester increased their awareness of the use of such strategies from the beginning to the end of the semester. In particular, the average overall post-score on the Metacognitive Awareness of Reading Strategies Inventory (MARS) increased by 0.32 from a pre-score of 3.24 to a post-score of 3.56. Specifically, the t-test showed that the explicit instruction was significantly effective for the participants. This result suggests that teaching metacognitive reading strategies to teacher candidates in literacy courses can enhance their understanding and awareness of using such strategies.

In fact, the result of this study is similar to the results of other studies, such as those of Cubukcu (2008a, 2008b) who found that students’ reading comprehension and vocabulary proficiency improved

after they received instruction on how to implement metacognitive reading strategies. The findings of this study also mirror the results of Lau's study (2006), which investigated the effectiveness of incorporating a reading strategy instruction program among six language teachers with 205 seventh graders. In Lau's study, after the teacher implemented the reading strategy instruction program with an emphasis on metacognitive reading strategies, students significantly increased their usage of these strategies, including inferring word meanings. In addition, the positive impact of teaching metacognitive reading strategies found in this study concurs with Nash-Ditzel's (2010) study, which also showed college students' increased knowledge of metacognitive reading strategies and ability to use them.

In response to a sub-research question, the researcher found that there were significant differences between pre- and post-scores of the Metacognitive Awareness of Reading Strategies Inventory (MARSİ) in the scores of its three sub-categories (Global Reading Strategies, GLOB; Problem Solving Strategies, PROB; and Support Reading Strategies, SUP). In particular, this study showed statistically significant positive differences in pre- and post-scores in the GLOB and SUP sub-categories.

While there was no significant difference in pre- and post-scores in the PROB sub-category, it should be noted that the average pre-score of 3.68 was significantly higher on the four-point scale, comparing to the pre-scores in the GLOB and SUP sub-categories (3.41 and 3.13, respectively). Thus, while students still increased their awareness of using problem solving metacognitive reading strategies, it might not reflect as significant an improvement as for other metacognitive reading strategies that had lower pre-scores. The results of this study align with those of other studies, such as Mokhtari and Reichard (2008) and Sheorey and Mokhtari (2008). In the study of Mokhtari and Reichard (2008), 65 eleventh graders took two sets of MARSİ, one for an academic reading purpose and another for an entertainment reading purpose. They shared the highest scores in the PROB sub-category on both sets of the MARSİ for academic and entertainment purposes, and then lower scores in the GLOB and SUP sub-categories on both sets of the MARSİ. In the study by Sheorey and Mokhtari (2008), 150 English-speaking college students and 152 English as a second language (ESL) college students completed MARSİ and the Survey of Reading Strategies (SORS), a modified version of MARSİ for ESL students (Mokhtari & Sheorey, 2002), respectively. Both groups indicated the highest average score in Problem Solving Strategies (PROB) among the three sub-categories of GLOB, PROB, and SUP.

With regard to teacher candidates' perceptions of metacognitive reading strategies, they showed positive

attitudes toward learning and teaching those strategies. They enjoyed learning metacognitive reading strategies over the semester. It is important for them to feel excited about learning these strategies because if they don't enjoy learning them, it could negatively impact their view of metacognitive reading strategies. Therefore, they may not appreciate the effectiveness of these strategies and may not implement them in the classrooms. Just as teachers themselves should first enjoy reading books to be shared with children, teaching metacognitive reading strategies is likely to be more effective if teacher candidates also enjoy them.

In addition, teacher candidates viewed metacognitive reading strategies as useful for their instruction and plan to implement them in their future classrooms. This indicates a positive effect on children's reading skills. Teacher candidates value metacognitive reading strategies and understand their effectiveness. They received explicit instruction about how to use such strategies; therefore, they can employ these strategies when they provide children with instruction in the future. Lombaerts, De Backer, Engels, van Braak, and Athanasou (2009) point out that teachers' beliefs influence how they shape their personal reactions to teaching theories and practices, and how these theories and practices drive their pedagogical instruction in the classrooms.

Some teacher candidates in this study shared that teachers can "work with students early on by modeling asking questions about the book while reading the book aloud to the class." They recognize "teaching metacognitive reading strategies is very important, but modeling is even more important." Modeling is an excellent way to begin introducing specific strategies to children.

Metacognitive reading strategies are evidence-based instruction (National Reading Panel, 2000). A number of research studies demonstrate the positive impact of using metacognitive reading strategies among children (Baker & Brown, 1984; Bereiter & Bird, 1985; Houtveen, & van de Grit, 2007; Souvignier & Mokhlesgerami, 2006; *Vaughn et al., 2011*). When teacher candidates intentionally teach children how to read effectively using metacognitive reading strategies, the children learn about such strategies.

### Conclusion

This study examined the impact of teaching metacognitive reading strategies among teacher candidates. It showed that teacher candidates increased their metacognitive awareness over the semester after explicit instruction. Van Blerkom & Van Blerkom (2004) note that metacognitive awareness is an essential factor in supporting readers' reading skills and contributes to the success of their learning. Using

metacognitive reading strategies involves learners' self-monitoring. Indeed, Flavell (1976), the founder of the concept of metacognition, asserts that metacognition requires active monitoring. Self-monitoring their reading process helps learners analyze their reading performance critically. Research shows that training students to employ metacognitive reading strategies has a positive impact on their reading comprehension (Allen & Hancock, 2008; Carrell, Gajdusek, & Wise, 1998). Advanced readers tend to use these strategies more than less advanced readers (Baker & Brown, 1984; Kamil 2003; Klingner, Vaughn, & Boardman, 2007). As Curwen, Miller, White-Smith, and Calfee (2010) point out, it is critical that educators are knowledgeable about, and equipped to use, "collaborative, reflective, and metacognitive strategies and instruction" (p. 146). In particular, pre-service teachers, who will be teaching future generations of children, will greatly benefit from learning about metacognitive reading strategies.

### References

- Al-Alwan, A. F. (2011). The effect of using metacognition reading strategies on the reading comprehension of Arabic texts. *International Journal of Applied Educational Studies*, 13(1), 1-18.
- Allen, K. D., & Hancock, T. E. (2008). Reading comprehension improvement with individualized cognitive profiles and metacognition. *Literacy Research and Instruction*, 47, 124-139. doi:10.1080/1938807080193820
- Alsheikh, N. O., & Mokhtari, K. (2011). An examination of the metacognitive reading strategies used by native speakers of Arabic when reading in English and Arabic. *English Language Teaching*, 4(2), 151-160. doi:10.5539/elt.v4n2p151
- Anderson, N. J. (2002). The role of metacognition in second/foreign language teaching and learning. Washington, DC. ERIC Clearinghouse on Language and Linguistics. Retrieved from ERIC database. (ED99CO0008)
- Anderson, N. J. (2005). L2 learning strategies. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning* (pp. 757-771). Mahwah, NJ: Lawrence Erlbaum Associates.
- Anderson, N. J. (2008). Metacognition and good language. In C. Griffiths (Ed.), *Lessons from good language learners* (pp. 99-109). Cambridge, UK: Cambridge University Press.
- Azevedo, R., & Whitterspoon, A.M. (2009). Self-regulated use of hypermedia. In D. J. Hacker, J. Dunlosky & A. C. Graesser (Eds.), *Handbook of metacognition in education* (pp. 319-339). New York, NY: Routledge.
- Baker, L., & Brown, A. L. (1984). Metacognitive skills and reading. In P. D. Pearson, R. Barr, M. Kamil, & P. Mosenthal (Eds.), *Handbook of reading research, Vol. 1* (pp. 353-394). New York, NY: Longman.
- Bereiter, C., & Bird, M. (1985). Use of thinking aloud in identification and teaching of reading comprehension strategies. *Cognition and Instruction*, 2(2), 131-156.
- Block, C. C., & Israel, S. E. (2004). The ABCs of performing highly effective think-alouds. *The Reading Teacher*, 58, 154-167. doi:10.1598/RT58.24
- Boulware-Gooden, R., Carreker, S., Thornhill, A., & Joshi, R. M. (2007). Instruction of metacognitive strategies enhances reading comprehension and vocabulary achievement of third-grade students. *The Reading Teacher*, 61, 70-77. doi:10.1598/RT.61.1.7
- Carrell, P. L., Gajdusek, L., & Wise, T. (1998). Metacognition and EFL/ESL reading. *Instructional Science*, 26(1-2), 97-112.
- Cubukcu, F. (2008a). Enhancing vocabulary development and reading comprehension through metacognitive strategies. *Issues in Educational Research*, 18(1), 1-11.
- Cubukcu, F. (2008b). How to enhance reading comprehension through metacognitive strategies. *The Journal of International Social Research*, 1&2, 83-93.
- Cummins, C., Stewart, M. T., & Block, C. C. (2005). Teaching several metacognitive strategies together increases students' independent metacognition. In S. E. Israel, C. C. Block, K. L. Bauserman, & K. Kinnucan-Welsch (Eds.), *Metacognition in literacy learning: Theory, assessment, instruction, and professional development* (pp. 277-295). Mahwah, NJ: Lawrence Erlbaum Associates.
- Curwen, M. S., Miller, R. G., White-Smith, K. A., & Calfee, R. C. (2010). Increasing teachers' metacognition develops students' higher learning during content area literacy instruction: Findings from the read-write cycle project. *Issues in Teacher Education*, 19(2), 127-151.
- Dole, J. A., Nokes, J. D., & Drits, D. (2009). Cognitive strategy instruction. In S. E. Israel & G. G. Duffy (Eds.), *Handbook of research on reading comprehension* (pp. 347-372). New York, NY: Routledge.
- Edmonds, M. S., Vaughn, S., Wexler, J., Reutebuch, C. K., Cable, A., Tackett, K. K., & Schnakenberg, J. W. (2009). Synthesis of reading interventions and effects on reading outcomes for older struggling readers. *Review of Educational Research*, 79, 262-300. doi:10.3102/0034654308325998

- Flavell, J. H. (1976). Metacognitive aspects of problem solving. In L. B. Resnich (Ed.), *The nature of intelligence* (pp. 231-235). New York, NY: Lawrence Erlbaum Associates.
- Hacker, D. J. (1998). Definitions and empirical foundations. In D. J. Hacker, J. Dunlosky, & A. C. Graesser (Eds.), *Metacognition in educational theory and practice* (pp. 1-23). Mahwah, NJ: Lawrence Erlbaum Associates.
- Houtveen, A. A. M., & van de Gridt, W. J. C. M. (2007). Effects of metacognitive strategy instruction and instruction time on reading comprehension. *School of Effectiveness and School Improvement, 18*(2), 173-190.
- Isaacson, R. M., & Fujita, F. (2006). Metacognitive knowledge monitoring and self-regulated learning: Academic success and reflections on learning. *Journal of the Scholarship of Teaching and Learning, 6*(1), 39-55.
- Israel, S. E. (2008). Flexible use of comprehension monitoring strategies: Investigating what a complex reading framework might look like. In K. B. Cartwright (Ed.), *Literacy processes: Cognitive flexibility in learning and teaching* (pp. 188 – 207). New York, NY: Guilford.
- Jacobs, J. E., & Paris, S. G. (1987). Children's metacognition about reading: Issues in definition, measurement, and instruction. *Educational Psychologist, 22*(3-4), 255-278.
- Kamil, M. L. (2003). *Adolescents and literacy: Reading for the 21<sup>st</sup> century*. Washington, DC: Alliance for Excellent Education.
- Klingner, J. K., Vaughn, S., & Boardman, A. (2007). *Teaching reading comprehension to students with learning difficulties*. New York, NY: Guilford.
- Lau, K. (2006). Implementing strategy instruction in Chinese language classes: A school-based Chinese reading strategy instruction programme. *Educational Research, 48*, 195-209. doi:10.1080/00131880600732280
- Lesley, M., Watson, P., & Elliot, S. (2007). "School" reading and multiple texts: Examining the metacognitive development of secondary-level preservice teachers. *Journal of Adolescent & Adult Literacy, 51*, 150-162. doi:10.1598/JAAL.51.2.6
- Lombaerts, K., De Backer, F., Engels, N., van Braak, J., & Athanasou, J. (2009). Development of the self-regulated learning teacher belief scale. *European Journal of Psychology of Education, 24*(1), 79-96.
- Lublinter, S., & Smetana, L. (2005). The effects of comprehensive vocabulary instruction on Title I students' metacognitive word-learning skills and reading comprehension. *Journal of Literacy Research, 37*(2), 163-200.
- McCormick, C. B. (2003). Metacognition and learning. In I. B. Weiner (Series Ed.) & W. M. Reynolds & G. E. Miller (Vol. Eds.), *Handbook of psychology: Educational psychology* (Vol. 7, pp. 79-102). Hoboken, NJ: John Wiley & Sons.
- Mokhtari, K., & Reichard, C.A. (2002). Assessing students' metacognitive awareness of reading strategies. *Journal of Educational Psychology, 94*(2), 249-259.
- Mokhtari, K., & Reichard, C. A. (2008). The impact of reading purpose on the use of reading strategies. In K. Mokhtari & R. Sheorey (Eds.), *Reading strategies of first- and second-language learners: See how they read* (pp. 85-97). Norwood, MA: Christopher-Gordon Publishers.
- Mokhtari, K., & Sheorey, R. (2002). Measuring ESL students' awareness of reading strategies. *Journal of Developmental Education, 25*, 2-10.
- Mokhtari, K., Sheorey, R., & Reichard, C. (2008). Measuring the reading strategies of first- and second-language readers. In K. Mokhtari & R. Sheorey (Eds.), *Reading strategies of first- and second-language learners: See how they read* (pp. 43-65). Norwood, MA: Christopher-Gordon Publishers.
- Nash-Ditzel, S. (2010). Metacognitive reading strategies can improve self-regulation. *Journal of College Reading and Learning, 40*(2), 45-63.
- National Assessment of Educational Progress (NAEP) (2012a). Grade 4 national results: Achievement level. Retrieved from [http://nationsreportcard.gov/reading\\_2011/nat\\_g4.asp?tab\\_id=tab2&subtab\\_id=Tab\\_1#chartNational](http://nationsreportcard.gov/reading_2011/nat_g4.asp?tab_id=tab2&subtab_id=Tab_1#chartNational)
- National Assessment of Educational Progress (NAEP) (2012b). Grade 8 national results: Achievement level. Retrieved from [http://nationsreportcard.gov/reading\\_2011/nat\\_g8.asp?tab\\_id=tab2&subtab\\_id=Tab\\_1#chart](http://nationsreportcard.gov/reading_2011/nat_g8.asp?tab_id=tab2&subtab_id=Tab_1#chart)
- National Reading Panel (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction: Reports of the subgroups* (NIH Publication No. 00-4754). Washington, DC: U.S. Government Printing Office.
- Othman, Y. (2010). Applications of metacognitive strategies and awareness when reading texts. *The International Journal of Learning, 17*(3), 457-471.
- Paris, S. G., Lipson, M. Y., & Wixson, K. K. (1983). Becoming a strategic reader. *Contemporary Educational Psychology, 8*(3), 293-316.
- Pressley, M. (2002). Metacognition and self-regulated comprehension. In A. E. Farstrup & S. J. Samuels (Eds.), *What research has to say about reading instruction* (3rd ed., pp. 291-309). Newark, NJ: International Reading Association.

- Pressley, M., & Gaskins, I. W. (2006). Metacognitively competent reading comprehension is constructively responsive reading: How can such reading be developed in students? *Metacognition and Learning, 1*(1), 99-113.
- Schreiber, F. J. (2005). Metacognition and self-regulation in literacy. In S. E. Israel, C. C. Block, K. L. Bauserman, & K. Kinnucan-Welsch (Eds.), *Metacognition in literacy learning: Theory, assessment, instruction, and professional development* (pp. 215-239). Mahwah, NJ: Lawrence Erlbaum Associates.
- Sheorey, R., & Mokhtari, K. (2008). Differing perceptions of reading strategy use between native and non-native college students. In K. Mokhtari & R. Sheorey (Eds.), *Reading strategies of first- and second-language learners: See how they read* (pp. 131-141). Norwood, MA: Christopher-Gordon Publishers.
- Souvignier, E., & Mokhtesgerami, J. (2006). Using self-regulation as a framework for implementing strategy instruction to foster reading comprehension. *Learning and Instruction, 16*(1), 57-71.
- Van Blerkom, M. L., & Van Blerkom, D. L. (2004). Self-monitoring strategies used by developmental and non-developmental college students. *Journal of College Reading and Learning, 34*(2), 45-60.
- Van Keer, H., & Vanderlinde, R. (2010). The impact of cross-age peer tutoring on third and sixth graders reading strategy awareness, reading strategy use, and reading comprehension. *Middle Grades Research Journal, 5*(1), 33-45.
- Vaughn, S., Klingner, J. K., Swanson, E. A., Boardman, A. G., Roberts, G, Mohammed, S. S., & Stillman-Spisak, S. J. (2011). Efficacy of collaborative strategic reading with middle school students. *American Educational Research Journal, 48*(4), 938-964.
- Winograd, P., & Hare, V. C. (1988). Direct instruction of reading comprehension strategies: The nature of teacher explanation. In C. E. Weinstein, E. T. Goetz, & P. A. Alexander (Eds.), *Learning and study strategies: Issues in assessment instruction and evaluation* (pp. 121-139). San Diego: Academic Press.
- 

YUKO IWAI, PhD is an Associate Professor of Literacy in the Department of Educational Studies at the University of Wisconsin-La Crosse. Her research interests include metacognitive reading, English language learners, teacher candidates' literacy and teaching skills, and multicultural education and diversity issues.