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Abstract

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Keywords

Preservice teachers, metacognitive reading, self-awareness, effective strategies

Promoting Strategic Readers: Insights of Preservice Teachers' Understanding of Metacognitive Reading Strategies

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This study focuses on preservice teachers' metacognitive reading strategies, in particular their awareness of such strategies as a reader and future teacher in three different stages (initial, middle, and final stages) of the teacher education program. The study had two research questions: (1) Are there any significant differences between metacognitive awareness and preservice teachers' academic stages? and (2) What are preservice teachers' perceptions of metacognitive awareness at the three different academic stages? One hundred sixteen preservice teachers participated in the study. Data included the Metacognitive Awareness of Reading Strategy Inventory (MARS) and open-ended questions. While the results indicated no significant differences between preservice teachers' stages and the scores in the MARS, they indicated significant differences among the mean scores for the sub-scores in the MARS. Preservice teachers also viewed themselves as high-achieving readers, used various metacognitive reading strategies, and understood the importance of teaching these strategies to children.

INTRODUCTION

Reading is one of the most important factors in enhancing students' learning. Teachers must teach students how most effectively to comprehend the text by using a variety of reading strategies. Researchers have stated that more proficient readers employ many different reading strategies, such as guessing, identifying main ideas, and focusing on text structures, while less proficient readers use fewer reading strategies (Paris, Lipson, & Wixson, 1983; Westby, 2004). The National Reading Panel (NRP) (2000) reported that teachers' modeling and intensive instruction on reading strategies can improve students' reading comprehension. Block and Israel (2005) also point out that teachers can help improve their students' reading comprehension by explicitly teaching specific reading strategies, including summarizing, questioning, and predicting. These statements indicate the importance of the teacher's role in the development of students' reading comprehension.

Not only do teachers need to know how to improve students' reading comprehension through teaching specific reading strategies, but teacher candidates also must learn such strategies for their future teaching. If teacher candidates are not prepared to teach these reading strategies, they are unlikely to introduce them to their students in the classroom; thus, students may not learn a variety of effective reading strategies to improve their reading comprehension. This study focuses on teacher candidates' metacognitive reading strategies, in particular their awareness of such strategies as readers and future teachers in three different stages of the teacher education program. The purpose of this study is to understand levels of metacognitive awareness among preservice teachers at the initial, middle, and final stages of the teacher education program. This study focuses on the following two research questions: (1) Are there any significant differences between metacognitive awareness and preservice teachers' academic stages? and (2) What are preservice teachers' perceptions of metacognitive awareness at the three different academic stages?

LITERATURE REVIEW

Metacognition and Strategic Reading

Metacognition is knowledge about thinking (Pressley, 2002). It is knowledge of and monitoring of one's thinking and learning processes (Baker & Brown, 1984). Flavell first introduced metacognition. He defines metacognition as "one's knowledge concerning

one's own cognitive processes and products or anything related to them" (Flavell, 1976, p. 232). Metacognition plays an important role in reading because it requires readers to critically reflect on their reading performance. For example, the National Reading Panel (NRP) (2000) affirmed that metacognition positively contributes to reading comprehension. Baker (2008) concurs with this statement.

Metacognitive reading 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 showed that one characteristic of proficient readers is their ability to select appropriate metacognitive reading strategies to meet their goals and to effectively use them (Klingner, Vaughn, & Boardman, 2007; Pressley & Afflerbach, 1995; Pressley & Harris, 2006). Readers can employ various metacognitive reading strategies before, during, and after reading. This concept coincides with three types of classification in metacognitive reading strategies: planning, monitoring, and evaluating (Anderson, 2008; Israel, 2007). Examples of metacognitive reading strategies for planning before reading are activating prior knowledge, examining a title, pictures, illustrations, headings, or subheadings, and previewing the length of the text and text structure (Almasi, 2003). Monitoring during reading includes self-questioning, checking understanding, determining what parts to focus on and ignore, looking for key information, and adjusting reading speed based on the purpose of reading (Israel, 2007; Pressley, 2002). Evaluating strategies after reading include reflecting on what readers have just read and summarizing (Israel, 2007; Pressley, 2002).

Instruction of Metacognitive Reading Strategies

In order to develop students' metacognitive reading strategies, teachers need to have professional knowledge about a wide range of strategies and provide students with explicit instruction about these strategies (Curwen, Miller, White-Smith, & Calfee, 2010). Research also showed that students can learn these metacognitive reading strategies and improve their comprehension when their teachers teach the strategies explicitly (Block & Israel, 2005; Edmonds et al., 2009). Boulware-Gooden, Carreker, Thornhill, and Joshi (2007) conducted a study to evaluate the effects of metacognitive reading instruction among third graders. Students in both the control and experimental groups received a reading comprehension lesson for 30 minutes per day. They had 25 instruction-

al sessions in total. Students in the experimental group received systematic instruction, which focused on vocabulary and multiple metacognitive reading strategies such as think-aloud, determining main and supporting ideas, summarizing, and questioning. Students in the control group received only traditional reading comprehension lessons. The results of pre- and post-reading comprehension tests indicated that students in the experimental group showed more improvements in reading comprehension and vocabulary than students in the control group.

In another study, 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 (Van Keer & Vanderlinde, 2010). The researchers found that both third and sixth graders demonstrated better reading strategy performance than students in the traditional group, which did not experience explicit instruction on metacognitive reading strategies. Brenna (2013) also states that providing metacognitive reading instruction to fourth graders enhanced their reading comprehension of graphic novels. In this study, 21 fourth graders learned different metacognitive reading approaches, such as synthesizing and making inferences, from their teacher, and practiced using them in 10 literacy sessions (one hour each session) over five weeks. Brenna concluded that students demonstrated a variety of metacognitive reading strategies while reading graphic novels. These strategies included monitoring, previewing, making predictions, and using textbook characteristics such as the table of contents.

Older students can also learn and apply metacognitive reading strategies. Vaughn et al. (2011) reported that seventh- and eighth graders, who had two 50-minute intervention sessions per week for approximately 18 weeks, benefited from learning metacognitive reading strategies from the teacher as well as in collaborative peer-group settings.

In addition, developing better reading comprehension strategies is critical to students in higher education. Lesley, Watson, and Elliot (2007) examined the use and awareness of metacognitive strategies among preservice teachers who majored in secondary education. Participants wrote a response journal entry for each class session during the thematic study and interacted with their group peers for approximately six weeks. They then synthesized all of their responses in a reflective essay. Lesley, Watson, and Elliot reported that preservice teachers identified their use of metacognitive reading strategies in both response journal entries and reflective essays. The most popular reported strategies were self-monitoring, retelling, and using prior knowledge.

Nash-Ditzel (2010) examined five college students' metacognitive reading strategies. Students attended a developmental reading class for 10 weeks where they learned a variety of metacognitive reading strategies, including using prior knowledge, questioning, determining the key information, and summarizing. From observations, pre- and post-think aloud protocols, interviews, and document analyses, the researcher found that the students used more metacognitive reading strategies and increased their reading comprehension at the end of the study. Huang and Newbern (2012) support Nash-Ditzel's findings. In their study, 18 adult English language learners in the experimental groups received reading and writing instruction, which included explicit metacognitive reading instruction for more than four months. They learned how

to determine key information, preview the text, reread, guess meanings of unfamiliar words, and use background knowledge. On the other hand, 18 learners in the comparison group received instruction without explicit metacognitive reading instruction for the same period of the study. Pre- and post-reading tests showed that students in the experimental group gained reading comprehension more than the students in the comparison group.

METHOD

Participants

The participants of this study were 116 preservice teachers (20 males and 96 females) in the teacher education program at a mid-size university in the United States. There were three stages (initial, middle, and final stages) in the teacher education program. Among 116 students, 22 students at the initial stage of the teacher education program enrolled in a three-credit foundations of literacy course where they learned basic literacy knowledge and skills. Twenty-nine students at the middle stage in the teacher education program took a five-credit literacy methods course, which focused on applied literacy instruction and advanced literacy knowledge. They also completed their first field experience while they were in the literacy methods course as part of their curriculum. Sixty-five students at the final stage in the teacher education program were student teachers. Participants' majors included early childhood education, elementary and middle school education, secondary education, and early childhood-adolescent education.

Instruments

The Metacognitive Awareness of Reading Strategy Inventory (MARS): The researcher used the MARS, which was developed by Drs. Mokhtari and Reichard (2002). It measures participants' awareness of metacognitive reading strategies when they read school-related academic materials (e.g., textbooks) on a 5-point scale (1=little use of strategy; 5=frequent use of strategy). The higher numbers indicate greater participant awareness of metacognitive reading strategies. Among 30 questions, there are three categories: Global Reading Strategies (GLOB), Problem-Solving Strategies (PROB), and Support Reading Strategies (SUP). There are thirteen, eight, and nine questions for GLOB, PROB, and SUP, respectively. Global Reading Strategies included having a purpose while reading, previewing the text, skimming, determining important information, and using text features such as tables and pictures. Examples of Problem-Solving Strategies are adjusting reading speed as needed, rereading, guessing meanings of unfamiliar words, and visualizing. Support Reading Strategies focus on strategies such as underlining important information, summarizing, and taking notes. The reliability of the MARS in the authors' study was .89, using Cronbach's alpha. This study yielded Cronbach's alpha of .91. Preservice teachers completed the MARS in this study.

Open-Ended Questions: The researcher also used open-ended questions in this study. Below are four questions used in the survey.

Question 1: How do you describe/evaluate yourself as a reader? Have you ever reflected on your reading strategies? If so, please describe what you do before, during, and after reading.

Question 2: What do you think about teaching K-12 students a variety of reading strategies? Why?

Question 3: What reading strategies have you ever taught to K-12 students? Please describe your experience(s).

Question 4: What reading strategies do you hope to teach K-12 students when you do your field-experience, student teach or teach as a teacher in the future?

Data Collection and Analysis

Preservice teachers completed the online survey including general demographic information such as major and gender, 30 MARSJ items, and open-ended questions. For the quantitative data analysis, the researcher used an ANOVA to see if there are any significant differences between the mean MARSJ overall scores among the population of all preservice teachers' academic stages (initial, middle, and final stage in the teacher education program). She also used a MANOVA to see if there are any significant differences for the population mean scores for the three categories of the MARSJ (Global Reading Strategies, GLOB; Problem-Solving Strategies, PROB; and Support Reading Strategies, SUP) among all preservice teachers at different academic stages. Furthermore, two-factor repeated measures ANOVA was conducted with the MARSJ subcategory as the "within" variable and stage in the teacher education program as the "between" variable. A 5% level of significance was used for each procedure.

For the qualitative data analysis, the researcher followed Creswell's (2008) steps of analyzing and interpreting qualitative data. The researcher first organized the data by each open-ended question. She explored the data to gain a general sense of the data while taking notes about ideas and key words. She then used the coding process (Creswell, 2008). She coded the data by segmenting and labeling, then highlighting key information and trends demonstrating participants' perceptions about and/or use of metacognitive reading strategies. She then reduced the number of codes by categorizing similar codes into one code.

RESULTS

Preservice teachers at the three stages in the teacher education program reported their awareness of metacognitive reading strategies in the Metacognitive Awareness of Reading Strategy Inventory (MARSJ) (see Table 1). Preservice teachers in the initial stage reported 3.26, 3.66, and 2.75 for the Global Reading Strategies (GLOB), Problem-Solving Strategies (PROB), and Support Reading Strategies (SUP) categories, respectively. This yielded the overall average of 3.22 for all items in three categories in the MARSJ. The scores for the GLOB, PROB, and SUP categories and overall average among preservice teachers at the middle stage were 3.58, 3.84, 2.92, and 3.45, respectively.

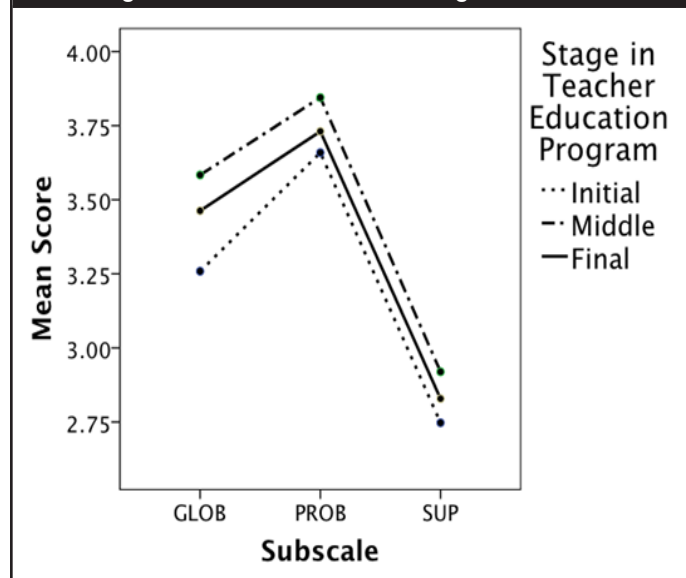
TABLE 1. Scores of the Metacognitive Awareness of Reading Strategies Inventory (MARSJ) by Preservice Teachers' Stage

| | GLOB | PROB | SUP | Overall |
|---------|------|------|------|---------|
| Initial | 3.26 | 3.66 | 2.75 | 3.22 |
| Middle | 3.58 | 3.84 | 2.92 | 3.45 |
| Final | 3.46 | 3.73 | 2.83 | 3.34 |
| Average | 3.45 | 3.75 | 2.84 | 3.35 |

GLOB= Global Reading Strategies; PROB= Problem Solving Strategies; SUP= Support Reading Strategies; Overall = Overall Average Scores for Three Categories.

Initial = Initial Stage in the Teacher Education; Middle = Middle Stage in the Teacher Education; Final = Final Stage in the Teacher Education.

Figure 1. Results of the Metacognitive Awareness Reading Strategy Inventory (MARSJ) among Preservice Teachers in Three Stages in the Teacher Education Program



2.92, and 3.45, respectively. Student teachers at the final stage in the teacher education program reported the scores of 3.46, 3.73, 2.83, and 3.34 for the GLOB, PROB, and SUP categories and overall average. Overall, average scores for the GLOB, PROB, and SUP categories at all three stages in the teacher education program were 3.45, 3.75, and 2.84, which resulted the average score of 3.35 for all three categories (See Figure 1).

For the quantitative data, an ANOVA showed that there were no significant differences between the population mean MARSJ overall scores among the preservice teachers' academic stages (initial, middle, and final stages in the teacher education program) ($F = 1.303$, $df1 = 2$, $df2 = 113$, $p = .276$). A MANOVA also showed that there were no significant differences for the average sub-scores of three categories of MARSJ (the Global Reading Strategies, GLOB; Problem-Solving Strategies, PROB; and Support Reading Strategies, SUP) among all preservice teachers ($F = 0.737$, $df1 = 6$, $df2 = 222$, $p = .620$). Two-factor repeated measures ANOVA was conducted with the MARSJ subcategory as the "within" variable and stage in the teacher education program as the "between" variable. There was no significant interaction between the MARSJ category and the stage in the teacher education program ($F = 0.394$, $df1 = 4$, $df2 = 226$, $p = .813$). However, there was a significant difference in the mean MARSJ subcategory scores (the Global Reading Strategies, GLOB; Problem-Solving Strategies, PROB; and Support Reading Strategies, SUP) ($F = 145.373$, $df1 = 2$, $df2 = 226$, $p < .0005$). Using a Bonferroni multiple comparison procedure, we can be 95% confident that the average PROB mean is 0.206 to 0.413 points greater than the average GLOB mean and 0.769 to 1.057 higher than the average SUP mean. Furthermore, the average GLOB mean was 0.458 to 0.748 more than the average SUP mean.

For the qualitative data, three main themes emerged: (1) preservice teachers viewing themselves as good, proficient readers, (2) preservice teachers using metacognitive reading strategies, and (3) preservice teachers recognizing the importance of using metacognitive reading strategies for children.

Preservice Teachers Viewing Themselves as Good,

Proficient Readers. First, preservice teachers at all three stages in the teacher education program viewed themselves as good, proficient readers. For example, a preservice student at the initial stage in the teacher education program reported “I believe that I am a pretty good reader.” Other participants at the same stage wrote, “I think of myself as a good reader. I have never had any problems when it comes to reading.” and “I’ve always been a very strong reader...I do a lot of the strategies...but they’ve become so natural that I rarely think about them while using them.” Preservice teachers at the middle stage in the teacher education program wrote, “I am a reflective reader and very active and engaged.” and “I would describe myself as a fluent reader.” Similar descriptions such as, “I believe I am a good reader...I have the ability to use many different reading strategies as I read.” appeared in student teachers’ responses.

Preservice Teachers Using Metacognitive Reading Strategies. Second, preservice teachers at all three stages in the teacher education program used metacognitive reading strategies. In particular, certain strategies in three categories of the Global Reading Strategies (GLOB), Problem-Solving Strategies (PLOB), and Support Reading Strategies (SUP) in the Metacognitive Awareness of Reading Strategy Inventory (MARS) were identified more frequently than other strategies by the participants. The most common Global Reading Strategies (GLOB) they used were previewing the text, skimming, and using typographical aids. A preservice teacher at the initial stage reported her previewing strategy: “Before I read I like to check how long the chapters are. By doing this, I know exactly how long it will take me to read.” A student teacher expressed her skimming strategy with the comment, “I look for any main topics.” For using typographical aids while reading, preservice teachers at the middle stage wrote, “I also pay attention to any bold, italicized or highlighted words” and “I use bold terms to help me understand the text.”

Among the Problem-Solving Strategies (PROB), the most frequently used strategy preservice teachers indicated was the re-reading strategy when texts became difficult. They indicated: “I read the information and if I do not understand, I read it again.” (preservice teacher at the middle stage); “I have to reread it a couple of times to understand the content.” (preservice teacher at the initial stage); and “If I don’t understand something, I reread the passage until I feel I have a good grasp on what it is saying.” (student teacher); and “I habitually reread until I understand difficult text” (student teacher).

The most frequently used Support Reading Strategies (SUP) by the preservice teachers included taking notes and summarizing. A preservice teacher at the initial stage in the teacher education program reflected on using the note taking strategy: “I usually take notes while I am reading things that I know I will have trouble remembering.” A preservice teacher at the middle stage expressed, “I take notes while I read, highlight and underline important concepts and even re-draw pictures that are in the text...When I am done reading, I will look over my notes, pictures and highlighted areas that I extracted from the readings.” A student teacher commented “I make notes to myself that stand out to me while reading or seem to be important messages that I should be taking away from the reading.” For the summarizing strategy, preservice teachers described, “After reading, I usually just see if I can summarize what I read in my head to decide if I need to skim through or not” and

“After reading I will summarize in my head what I have just read. If I can create a good summary, I know I have learned something and that my reading was successful.”

Preservice Teachers Recognizing the Importance of Using Metacognitive Reading Strategies for Children.

Third, preservice teachers at all stages in the teacher education program saw the importance of using metacognitive reading strategies for children. However, preservice teachers at the initial stage expressed the significant role of metacognitive reading strategies in general from the learners’ perspective. Their interest in using these strategies was also very general without any specific examples. Some responses from preservice teachers at the initial stage included: “I think it is a good idea to teach them a variety of reading strategies because all students learn in different ways so some strategies will work better than others for some kids.” “I hope to use a variety of strategies to best fit the needs of my students.” “I hope to teach several methods depending on age appropriateness of the method.”

On the other hand, preservice teachers at the middle and final stages viewed the key role of these strategies from the teachers’ perspective and identified a number of strategies to implement in their teaching. They shared:

• “I believe that students need to be challenged by having many varieties of strategies.”

• “Reading strategies should be taught through integrating into other subjects.”

• “The more strategies students are taught, the more likely they are to find one that works well with their reading style and the needs they have to become better readers. I think teaching a variety of different strategies is very important to ensuring we provide students with the tools they need to be successful in the future.”

• “I think it is extremely important to teach students a variety of reading strategies as they can use those strategies later in their life to help them comprehend and remember the text that they read. Reading strategies are life skills that will benefit them with all forms of reading in the coming years.”

DISCUSSION

This research study aimed to respond to two research questions. The first research question was: Are there any significant differences between metacognitive awareness and preservice teachers’ academic stage? The Metacognitive Awareness of Reading Strategy Inventory (MARS) results showed that preservice teachers at the middle stage in the teacher education program had the highest scores in all three categories of the Global Reading Strategies (GLOB), Problem-Solving Strategies (PROB), and Support Reading Strategies (SUP) in the MARS. Student teachers at the final stage had the second highest scores in all three categories of the GLOB, PROB, and SUP. Preservice teachers at the initial stage had the lowest scores in all three categories.

There are some explanations for these results. First, preservice teachers at the middle stage in the teacher education program were taking a five-credit literacy methods course when this study was conducted. Due to the nature of this methods course, they were learning a number of literacy strategies, and their minds might have been fresher when they took the survey regarding their

awareness and use of metacognitive reading strategies. They might have been more familiar with specific names of reading strategies and might have had better knowledge of these strategies than preservice teachers at the initial and final stages. Preservice teachers at the middle stage were also in their field experience, where they could apply what they learned from the course. Indeed, they taught literacy lesson(s) as required for their field experience assignment in the same semester.

Next, student teachers at the final stage in the teacher education program completed all course work before their student teaching, and their student teaching sites varied from kindergarten to high school. Their placements may not have necessarily allowed them to teach literacy lessons. It depended on their majors, placements, and their classroom teachers. For example, while teachers of adolescent students are to integrate literacy across the curriculum (International Reading Association, 2012; Wood, Piloneita, & Blanton, 2009), student teachers majoring in secondary education, such as math or social studies, might have focused on their content area teaching, which might not have included literacy elements. They might also have viewed literacy as less important than their subject content.

Finally, preservice teachers at the initial stage in the teacher education program had just started to learn literacy in general. They were at the introductory level in their literacy knowledge. They also had no interaction with children because they did not have any field experience component attached to their education-related courses. These factors might have contributed to their lowest scores in the MARSIs, as they did not have a lot of knowledge of reading strategies and key literacy elements.

With regard to the trends of preservice teachers' responses on the MARSIs, the results indicated that all three groups of preservice teachers scored the highest in the Problem-Solving Strategies (PROB) category regardless of their academic stages in the teacher education program. Three groups of preservice teachers also had the second highest scores in the Global Reading Strategies (GLOB) category and the lowest scores in the Support Reading Strategies (SUP) category. The results align with previous studies (e.g., Mokhtari & Reichard, 2008; Sheorey & Mokhtari, 2008), which also indicated the same trends of the GLOB, PROB, and SUP in the MARSIs. For example, 150 college students enrolled in a French English Composition course reported the highest score of 3.48 on PROB, followed by the score of 3.24 on GLOB, and the lowest score of 2.53 on the SUP.

However, there is some contradiction between the open-ended questions and the MARSIs scores in this study. The open-ended questions revealed that many preservice teachers at all stages use three Global Reading Strategies (GLOB) (i.e., previewing the text, skimming, and using typographical aids), one Problem-Solving Strategy (PROB) (i.e., rereading), and two Support Reading Strategies (SUP) (i.e., taking notes and summarizing) a lot. More specifically, participants indicated in their answers to the open-ended questions that they use a lot of Support Reading Strategies (SUP). This result did not match the results of the MARSIs scores in the SUP category, which was the lowest score among three categories of the GLOB, PROB, and SUP. This point implies a limitation of self-reporting on the MARSIs. Participants might actually use more Problem-Solving Strategies (PROB) than they think they do. This contradiction between the open-ended questions and MARSIs scores also might suggest the need for collective multiple data, such as think-alouds and observations on preservice teachers' teaching in the classrooms, in order to understand their actual read-

ing performance and approaches.

The second research question posted in this study was: What are preservice teachers' perceptions of metacognitive awareness at three different academic stages? The results of this study indicated that preservice teachers at all stages in the teacher education program viewed themselves as high-achieving readers, used various metacognitive reading strategies, and understood the importance of teaching these strategies to children. First, the fact that preservice teachers see themselves as proficient readers suggests that they are motivated to read and enjoy reading. There is a correlation between motivation and reading achievement (Guthrie, McRae, & Klauda, 2007). Research shows that motivated readers tend to read more books, leading to better reading comprehension (Guthrie, McRae, Coddington, Klauda, Wigfield, & Barbosa, 2009). However, one of the characteristics of struggling readers is lack of motivation, which causes them to avoid reading and leads to poor reading comprehension (Meece & Miller, 2001). The results of this study imply that a preservice teacher's positive attitude toward reading is the key element when teaching children to read.

Second, preservice teachers used various metacognitive reading strategies. As mentioned earlier, many participants shared that they use previewing, skimming, using typographical aids, rereading, taking notes, and summarizing from the items of the Metacognitive Awareness of Reading Strategy Inventory (MARSIs). Examples of other reading strategies preservice teachers identified included having a purpose in mind when reading, determining which parts to read closely and which to ignore, depending on the purpose of reading, using context clues, monitoring during reading, and underlining key information or unfamiliar words. The results showed that they are aware of different types of reading strategies and apply these strategies when they read.

This is a promising fact because they at least have knowledge of what reading strategies are. Knowing strategies is one of the critical elements. In the theory of metacognition, knowing strategies is known as declarative knowledge. Declarative knowledge in the example of reading is "a learner's understanding about what reading strategies are" (Iwai, 2011, p.152). Readers need to develop this declarative knowledge as well as procedural knowledge, which is the next step toward better reading comprehension. Procedural knowledge is readers' knowledge of how to use reading strategies. In other words, they need to know the steps of using context clues, think-alouds, or making inferences. In this study, preservice teachers at the middle and final stages in the teacher education program knew the procedure of implementing different reading strategies. For example, a preservice teacher at the middle stage described how to implement the decoding by analogy strategy. She wrote, "I will use words that they know how to pronounce with the same word part as the one they are trying to pronounce, such as kill, spill, and hill (decoding by analogy)." In addition, educators need to develop students' conditional knowledge, which is the last element for better reading performance in the theory of metacognition. Having conditional knowledge in reading performance means readers know when, where and why they use particular reading strategies and assess their effectiveness (Iwai, 2011). In this study, preservice teachers provided detailed information about how they taught reading to children during their field experience or student teaching placements. One student teacher shared: "I have encouraged students to look for key words (subtitles, bold, italicized, etc.), as well as using pictures or tables to help them understand or add to their comprehension. In addition, I had a student break down

sentences in order to figure out which part they were not understanding (or ask what word they don't understand and have them use context clues to figure out the meaning). Also, I encourage taking notes while reading and summarizing what they read once they are finished. I have had students ask themselves questions they would like to know about the topic before they begin reading and try to answer those questions as they read or after they are done reading." This quote indicates that this preservice teacher knew various reading strategies and applied appropriate ones effectively in different situations. It demonstrates her perceived acquisition of conditional knowledge, which is the application and important element in reading performance. Developing one's metacognitive processes is critical to successful reading comprehension (McCormick, 2003).

Finally, preservice teachers understood the importance of teaching metacognitive reading strategies to children. They know a variety of reading strategies and view them as the essential tool to develop children's reading comprehension. In fact, preservice teachers at the middle and final stages in the teacher education program, who had the opportunities to interact with children when the study was conducted, shared that they implemented different metacognitive reading strategies. The more awareness they have regarding the importance of these strategies, the more likely they are to implement these strategies in their teaching. Research showed the effectiveness of teaching these strategies to students (Anderson, 2008; Cummins, Stewart, & Block, 2005; Lubliner & Smetana, 2005; Pressley & Gaskins, 2006).

CONCLUSION

This research focused on preservice teachers' use and awareness of metacognitive reading strategies at three stages (initial, middle, and final) in the teacher education program. While there was no significant difference between preservice teachers' stages for the population mean scores of the Global Reading Strategies (GLOB), Problem-Solving Strategies (PLOB), and Support Reading Strategies (SUP) subscales in the Metacognitive Awareness of Reading Strategy Inventory (MARS), the results indicated significant differences between the mean scores for the subscales with PROB exceeding both GLOB and SUP, and GLOB exceeding SUP. This study also provided insight into preservice teachers' awareness and use of these strategies. They employ various types of metacognitive reading strategies when they read and view implementing those strategies in the classroom as a critical element of their teaching. Literacy instructors and educators in the teacher education programs at the college level must recognize the essential role of metacognitive reading strategies and their positive impacts on students' reading comprehension. They must not only introduce students to these strategies, but also explicitly teach how to implement (procedural knowledge) and when to use them effectively (conditional knowledge) in their pedagogy classes. Emphasizing these strategies will support children's better reading comprehension.

This study was limited by not using preservice teachers' actual reading performance or teaching. Including these components in further research is recommended. The sample sizes of the three groups participating in this study (preservice teachers at the initial stage in the teacher education program, preservice teachers at the middle stage, and student teachers at the final stage) were not equal. Having a similar sample size for all three groups might shed

additional light on the quantitative findings.

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